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ABSTRACT

Volume 1 in a projected series of four annotated bibliographies contains 1,085 entries published from before 1964 through 1971 on prevention and early care for young children (primarily under two years of age) afflicted with cerebral palsy or related developmental disabilities. Arranged alphabetically by author's name, listings usually include title, source, volume number and pagination, publication date, and an abstract of the document's contents. Also included are author and subject indexes. (LH)

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CEREBRAL PALSY AND RELATED DEVELOPMENTAL DISABILITIES--PREVENTION AND EARLY CARE

An Annotated Bibliography

Volume I

1971
(Includes Items Published from
before 1964 through 1971)

Compiled by

RAYMOND R. REMBOLT, M.D., and BETH ROTH, M.A.

NCEMMH Reprint Series
Publication Number NC-75.903

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FOREWORD

Cerebral Palsy and Related Developmental Disabilities--Prevention and Early Care: An Annotated Bibliography, compiled by Raymond R. Rembolt, M.D., and Beth Roth, was sponsored by the United Cerebral Palsy Associations, Inc. It consists of three volumes: Volume I (1971) includes items published from before 1964 through 1971; Volume II (1972) includes items published 1968-1972; and Volume III (1973) includes items published in 1972 and 1973. The project was supported partly by the Association and partly by the UCPA "Nationally Organized Collaborative Project to Provide Comprehensive Services for Atypical Infants and Their Families" USOE (Bureau of Education for the Handicapped)--Grant No. 0-71-4492(616). Selection and compilation of the material took place mainly at the University Hospital School of The University of Iowa.

A panel of experts appointed by NCEMMH to review the bibliography has recommended that NCEMMH arrange for publication of the bibliography. Therefore, as a service to all personnel working with handicapped young children--educators, physicians, and researchers--NCEMMH has provided for its publication, and, with the assistance of the Ohio State University Press, for its nationwide distribution on a nonprofit basis.

This is the first edition. The NCEMMH Reprint Series encompasses not only previously published materials which have gone out of print but also those which NCEMMH is publishing on behalf of another organization.

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PREFACE

"To accumulate and review comprehensively the scientific and public education literature" is a current objective of the National Task Force of the United Cerebral Palsy Associations, Inc., which is concerned with prevention and early care relative to cerebral palsy and related disorders. In general, "early care" pertains to young children, especially those under two years of age who are delayed in their development. The term "cerebral palsy" is to include those who have impairment in motor control as a result of brain lesion or dysfunction. This annotated bibliography was initiated in an attempt to at least partially fulfill the objective stated above.

The following pages of annotations are not inclusive of all literature on the subject. Rather, the objective of the compilers has been to select pertinent material for its usefulness to varied disciplines. Interestingly, one half of the material is from publications during the years 1968-1971 inclusive; one third from the period 1964-1967; and the remainder from before 1964, which is included especially because of its importance. Regrettably some highly relevant contributions may have been omitted inadvertently.

Greater interest in this subject has resulted in an increasing number of publications relating to the subject. For example, 1,085 annotations from 1,999 different authors and co-authors are listed in this volume and no material beyond 1971 has been included. Accordingly, work has already begun on the preparation of another volume of this kind for 1972.

Many persons from various professional fields have kindly suggested references from which annotations have been made in this publication. Mrs. Beth Roth, in the field of library science, has contributed in a major way to all aspects of this project. Mrs. Elma Rossmann, Administrative Assistant at the University Hospital School, has worked many hours in typing and aiding in the organization of the material for this publication. The helpfulness of various librarians at the University of Iowa is greatly appreciated. Many others have helped directly or indirectly to bring the project to fruition. Utilization of certain available space and facilities of the University Hospital School has been of considerable convenience in preparing this material. To all who have been involved in one way or another, sincere gratitude is our most heartfelt feeling.

Raymond R. Rembolt
University Hospital School
University of Iowa

Iowa City, Iowa
June 28, 1972

1. Abramowicz, Mark, and Kass, Edward H.: "Pathogenesis and Prognosis of Prematurity," *New England Journal of Medicine*, 275:878-885, 938-943, 1001-1007, 1053-1059, Oct. 20, Oct. 27, Nov. 3, Nov. 10, 1966.

   The purpose of this four part series "is to present critically the current status of the prematurity problem and of approaches to its prevention." In the first portion of the series the mortality rates associated with prematurity and the incidence of prematurity are explained. The confusion surrounding factors that are associated with and factors that cause prematurity is discussed as the "setting for prematurity" is presented. In the second section of this article factors that occur during pregnancy that may influence prematurity are considered. These are various pregnancy complications, poor nutrition, anemia, smoking, and high altitude. The discussion of the influences on prematurity that occur during pregnancy is continued in the third portion of this paper. Relationships found by investigations between prematurity and maternal heart volume and maternal weight are presented and criticized. Studies that corroborate and that disagree with the associations found are described. Also considered are the relations between prematurity and work during pregnancy, prenatal care, hormone treatment, bacteriuria, psychological factors, and other miscellaneous variables. In the final section of the article are reviewed the association known between prematurity and cerebral palsy and the prognosis for infants of low birth weight. Stressed are the problems that arise in the study of such prognosis. Numerous studies are mentioned throughout and bibliographies appear after each portion of the paper.

2. Abrams, Stanley: "The Upper Weight Level Premature Child," *Diseases of the Nervous System*, 30:414-417, June, 1969.

   A group of 21 children, having had birth weights of from 3 1/2 to 5 lbs., were assessed for differences between a matched control group at between the ages of six and nine years. Assessment methods are described. No statistically significant differences between the two groups could be detected. "Tendencies toward weakness in the perceptual-motor area" were noted in the lower birth weight group.

3. Ackerman, Bruce D., and Dyer, Geraldine Y.: "Decline in Serum Bilirubin Con-Contration Coincident with Clinical Onset of Kernicterus," *Pediatrics*, 48:647-650, Oct., 1971.

   Four cases are presented and discussed to illustrate such a decline.

4. Ackerman, Bruce D.; Dyer, Geraldine Y.; and Leydorf, Mary M.: "Hyperbilirubinemia and Kernicterus in Small Premature Infants," *Pediatrics*, 45:918-925, June, 1970.

   In a study "designed to evaluate the risk of neurologic damage in relation to bilirubin levels for infants with a birth weight under 1,500 gm" records of 54 infants, who had such birth weights and who lived at least 48 hours, "were reviewed to determine the incidence of bilirubin levels above 15 mg/100 ml." Seven of the 54 were found to have had such levels "on at least 2 occasions," and data are presented on these 7 cases. "Maximum indirect bilirubin levels ranged from 17.0 to 23.2 mg/100 ml." Five of the 7 were found to have kernicterus, and 4 of the 5 died with the 1 survivor showing signs of neurological damage. Exchange transfusions, performed in 4 of the 5 cases of kernicterus, "were ineffective in preventing kernicterus." Main findings are discussed as is the use of phototherapy. It is concluded that "if the prophylactic use of phototherapy does not prevent moderate hyperbilirubinemia from occurring in a given small, critically ill premature infant, then exchange transfusion must be carried out at a low level of serum bilirubin in order to prevent neurologic damage."

5. Adams, Anne H.: *Early Childhood Education for Handicapped Children: A Bibliography of Selected Books.* Austin, Texas: University of Texas, Program for Staff Training of Exemplary Early Childhood Centers for Handicapped Children, [1971]. 21 pp. (Distinguished Staff Training Monograph Series Vol. II. No. 2).

Citations are listed alphabetically by author. This volume also contains eight pages of information about the compiler of the bibliography.

6. Adamsons, K., Jr.; Behrman, R.; Dawes, G.S.; James, L.S.; and Koford, C.: "Resuscitation by Positive Pressure Ventilation and Tris-Hydroxymethylaminomethane of Rhesus Monkeys Asphyxiated at Birth," *Journal of Pediatrics*, 65: 807-818, Dec., 1965.

Rhesus monkeys were asphyxiated at birth and resuscitated by using positive pressure ventilation. To one-half of the monkeys was administered a solution of Tris and glucose during resuscitation in addition to the ventilation. In these treated monkeys, "the time required to establish rhythmic breathing" was reduced and "the immediate O_2 uptake" was increased. A linear relationship was found "between duration of asphyxia and the return of respiratory function." Results concerning the relation between asphyxia and the development of respiratory distress are also reported.

7. Aicardi, J.; Amsili, J.; and Chevrie, J.J.: "Acute Hemiplegia in Infancy and Childhood," *Developmental Medicine and Child Neurology*, 11:162-173, April, 1969.

A comparison was made between 89 cases of hemiplegia following status epilepticus and 33 cases of acute hemiplegia not associated with convulsions for the purpose of determining whether the mode of onset was related to the cause, course, and prognosis. Factors compared were the age and mode of onset, sex, side affecteed, language and sensory defects, and antecedent history. Results on follow up and from laboratory, neuro-radiological, and cerebral angiographical observations are given. Post-convulsive hemiplegia was found to have a poorer prognosis, with mental retardation and epilepsy frequently seen. It is suggested that prolonged convulsions may cause the neurologic deficit in some of the post-convulsive cases. The findings are seen as significant for the prognosis and treatment of individual cases.

8. Akiyama, Y.; Schulte, F.J.; Schullz, M.A.; and Parmelee, A.H., Jr.: "Acoustically Evoked Responses in Premature and Full Term Newborn Infants," *Electroencephalography and Clinical Neurophysiology*, 26:371-380, April, 1969.

Acoustically evoked responses (AER's) were obtained from 11 full term newborns during the first week of life, from 6 premature newborns after their conditions had stabilized, and from 3 infants who had "severe perinatal hypoxia," but were able to respond to voices, etc. The AER's were obtained during the defined states of Quiet Sleep (QS) and Active Sleep (AS). Methods and results for each group of infants are presented. "Characteristic peaks were present in greater detail in the normal full term infants during QS as compared to the premature and hypoxic infants, but diminished in amplitude during AS." The infants having had perinatal hypoxia "did not show the usual sequence and shape of the peaks in either AS or QS." This was felt to be "indicative of general cerebral pathology" and substantiates the value of the AER as an aid in determining the neurological status of neonates. At follow-up all three of these infants had some degree of spastic involvement.

9. Alberman, Eva: "Birth Weight and Length of Gestation in Cerebral Palsy," *Developmental Medicine and Child Neurology*, 5:388-394, Aug., 1963.

Birth weight and length of gestation were investigated for a group of cerebral palsied children and for a control group born at the same time. The clinical categories into which the cases of cerebral palsy were grouped are presented in a table. Only the cases in the four largest groups were considered. These were spastic paraplegia, spastic diplegia, spastic quadriplegia, and "athetosis without history of neonatal jaundice." These terms are defined, and graphs are presented to show the frequency distribution of birth weight and length of gestation for each of the four groups and for the controls. In the cases of spastic diplegia, spastic quadriplegia, and athetosis, there was a tendency for birth weight to be low in relation to gestational age. "The implication would be that a factor acting prenatally is involved in the development of certain types of cerebral palsy."

10. Alberman, Eva D.: "Cerebral Palsy in Twins," *Guy's Hospital Report*, 113:285-295, 1964.

Forty-five twin pairs, of which at least one of the twins of each pair had cerebral palsy, were studied with regard to pregnancy and birth factors. Results are reported concerning length of gestation, sex, birth weight, fate of the co-twin, and twin order. "The frequency distribution of periods of gestation of these twins was bimodal, with one peak around 32 weeks, and a second around 37 weeks. It is suggested that as in singletons with cerebral palsy, these might represent two different aetiological groups."

11. Alberman, Eva D., and Goldstein, H.: "The 'At Risk' Register: A Statistical Evaluation," *British Journal of Preventive and Social Medicine*, 24:129-135, Aug., 1970.

The process of the construction and the use of "a mathematical model of the functioning of a system of selective screening for handicap" is described. Data from the National Child Development Study was employed. The model risk register was used to answer two questions: "What is the optimal size of a risk register?" and "What is the optimal distribution of resources between the resulting high and low risk groups?" These questions are answered, and two appendices, including a detailed description of the mathematical model, follow.

12. Allen, S.T.; Dubner, M.S.; and Mockler, N.D.: "Routine Prenatal Screening for Atypical Antibodies," *American Journal of Obstetrics and Gynecology*, 99:274-279, Sept. 15, 1967.

Methods and results are described when a complete procedure of antibody screening was initiated for prenatal patients. This procedure was employed "to evaluate its usefulness in detecting heretofore unsuspected cases of isoimmunization." There were 1810 obstetrical patients screened. In 41 of these patients atypical antibodies were detected. These cases are described and the detected antibodies are summarized. "Sixty-three per cent of the antibodies detected were the result of sensitization to factors other than Rho (D) and would not have been detected using 'older' classic procedures." It is emphasized that all prenatal patients should be tested for atypical antibodies "regardless of past history, parity, or Rh type."

13. Alter, Aaron A.; Feldman, Felix; Twersky, Joshua; De Vos, Edward; Prutting, David L.; Miotti, Angelica; and Bryan, David E.: "Direct Antiglobulin Test in ABO Hemolytic Disease of the Newborn," *Obstetrics and Gynecology*, 33:846-851, June, 1969.

A retrospective study of 1,473 infants whose mothers had group O blood was made to determine the value of this test "as done in a routine manner by blood bank technicians." Methods are described. A positive result was found "in 29% of O-A and O-B pregnancies and was shown to segregate a group of newborns who had evidence of a greater degree of hemolysis than those with a negative direct antiglobulin test."

14. American Academy of Pediatrics. Committee on Environmental Hazards and Subcommittee on Accidental Poisoning of Committee on Accident Prevention. "Acute and Chronic Childhood Lead Poisoning," *Pediatrics*, 47:950-951, May, 1971.

Briefly mentioned are causative factors, incidence, sequelae, etc. The Academy then makes the following recommendations: "1) The major emphasis of programs designed to prevent adverse health effects in children from lead be placed on the testing of dwellings for lead-pigment paints on housing surfaces, both interior and exterior, in order to identify high-risk areas within the community. 2) As a policy, determine lead in blood of all 12- to 15-month-old children living in poorly maintained dwellings in identified high-risk areas and wherever other special local situations expose children to lead hazards. At the very least, a subsequent sample of blood should be obtained during the following spring or summer."

15. American Academy of Pediatrics. Subcommittee on Accidental Poisoning. "Prevention, Diagnosis, and Treatment of Lead Poisoning in Children," *Pediatrics*, 44:291-298, Aug., 1969.

Causative factors in lead poisoning are separately discussed including "pica, cultural and behavioral patterns in children, widespread environmental exposure to lead in deteriorated housing, and certain aspects of lead metabolism." Also considered are the diagnosis, the treatment and the prevention of lead poisoning. A detailed chart, entitled, "Laboratory Determinations Required for Diagnosis of Lead Intoxication in Children" is included.

16. Amiel-Tison, Claudine: "Cerebral Damage in Full-Term New-Born; Aetiological Factors, Neonatal Status and Long-Term Follow-Up," *Biologia Neonatorum*, 14:234-250, 1969.

A preliminary study is reported of 41 full term neonates who had severe neurological symptoms during the neonatal period. In these cases a thorough analysis was made of pregnancies and deliveries, and the children were examined regularly. Between the ages of two and five years, 25 of these children were classified as to I.Q. and neurological status. The subjects, clinical neonatal signs observed, neonatal care, obstetrical data, and follow-up methods are described. Results concerning etiology, perinatal neurological signs, long-term prognosis, encephalographic data, and pathological data on the four deceased infants are reported. In 19 cases, birth trauma was felt to be the etiological factor while in the other cases various other factors were involved. Ten of the 41 babies had had status epilepticus as newborns. Out of the 25 children classified, 15 were found to be normal, four had a "slight disability," and six were "severely handicapped." Status epilepticus had been present in five of the later group. Only one child having had birth trauma was severely damaged. Possible conclusions and implications are drawn.

17. Amiel-Tison, Claudine: "Neurological Evaluation of the Maturity of Newborn Infants," *Archives of Disease in Childhood*, 43:89-93, Feb., 1968.

A neurological examination technique to be used with newborns is described in which "positive tone," "active tone," and various reflexes are assessed for the purpose of distinguishing between babies born prematurely and small-for-dates babies. Terms are defined and tables illustrate responses at the various gestational ages.

18. Anderson, Anne B.; Laurence, K.M.; Davies, Kathleen; Campbell, H.; and Turnbull, A.C.: "Fetal Adrenal Weight and the Cause of Premature Delivery in Human Pregnancy," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 78:481-488, June, 1971.

The cases of 79 infants who were delivered prematurely and who were either stillborn or died within 12 hours of birth, were studied. Postmortem examination was conducted, and the cases were divided into three groups on the basis of the clinical cause of premature delivery. In Group 1 the cause was unknown, in Group 2 the cause was antepartum hemorrhage, and in Group 3 the cause was pre-eclampsia. Results are presented concerning the weight of the adrenals, the histology of the adrenals, and the weights of the kidneys and the thymus. "The weight of the fetal adrenals in cases without apparent cause for premature labour was increased compared to the weight in cases of similar fetal weight or gestational age in the other two groups. The adrenal weight in cases of pre-eclampsia was less than that in the cases of antepartum haemorrhage. The weight of the kidneys was similar in the three groups and there was no relationship between adrenal weight and thymic weight." Implications are discussed.

19. Anderson, J.M.; Milner, R.D.G.; and Strich, Sabina J.: "Pathological Changes in the Nervous System in Severe Neonatal Hypoglycaemia," *Lancet*, 2:372-375, Aug. 13, 1966.

Described and discussed are "the microscopic changes in the central nervous system of two infants who died from prolonged hypoglycaemia."

20. Anderson, John M.; Milner, R.D.G.; and Strich, Sabina, J.: "Effects of Neonatal Hypoglycaemia on the Nervous System: A Pathological Study," *Journal of Neurology, Neurosurgery, and Psychiatry*, 30:295-310, Aug., 1967.

Presented are the case histories and pathological findings in six infants who had hypoglycemia in the first week of life. Three cases were treated, three were not. In the untreated cases, "there was extensive degeneration of nerve cells throughout the central nervous system." The brains of the treated infants revealed "only slight abnormalities." Causation, incidence, and pathogenic factors are discussed. "It is concluded that hypoglycaemia in the first week of life is an important cause of brain damage which can be prevented by timely treatment."

21. Anderson, Rebecca B., and Rosenblith, Judy F.: "Light Sensitivity in the Neonate: A Preliminary Report," *Biologia Neonatorum*, 7:83-94, 1964.

Described are four neonatal cases out of 700 examined in connection with the Collaborative Project, in which a definite sensitivity to light was noted. Methods of selection, examination, etc., are outlined. Presented for these four cases are the results on the Neonatal Behavioral Examination, the four month Pediatric Examination, the eight month Psychological and the 12 month Neurological. In addition to the light sensitivity, all four of the infants demonstrated a "wide discrepancy between the muscle tone of their upper and lower limbs." Further work with these two symptoms is deemed necessary.

22. Anderson, Ursula; Jenss, Rachel; Mosher, William E.; Randall, Clyde L.; and Marra, Edward: "High-Risk Groups - Definition and Identification," *New England Journal of Medicine*, 273:308-313, Aug. 5, 1965.

Described is the procedure used to identify high-risk groups as a part of "a maternal and child-health program" in Buffalo, New York. The procedure involved three main steps: identification of geographic areas of high-risk, the validation of these findings, and the comparison of "differences between the population in the high-risk area and the remainder of the city." Methods used in each step are presented. Subgroups within the high-risk area were able to be differentiated, thus enabling the determination of those at very high-risk and the individualization of programs.

23. Andrews, Billy F., ed.: "Symposium on the Small-For-Date Infant," *Pediatric Clinics of North America*, 17:1:202, Feb., 1970.

This Symposium was held in Louisville, Kentucky in November of 1968. Papers from the meeting on the following topics and by the following authors are published in this volume: "Prenatal Influences Upon Small-For-Date Infants: An Introduction" by Frank Falkner; "The Small-For-Date Infant: Etiology and Prognosis" by C. M. Drillien; "The Influence of Placental Lesions on the Newborn Infant" by D. R. Shanklin; "The Use of Urinary Estriol Excretion Studies in the Assessment of the High-Risk Pregnancy" by John W. Greene, Jr. and Robert A. Beargie; "Amniotic Fluid Studies to Determine Maturity" by Billy F. Andrews; "Cellular Growth in Intrauterine Malnutrition" by Myron Winick; "Body Composition in Intrauterine Growth Retardation" by George Cassady; "Chromosome Abnormalities and Intrauterine Growth Retardation" by Leonard E. Reisman; "Endocrine

Influences on Fetal Growth" by Duncan R. MacMillan; "Infections and Intrauterine Growth Retardation" by Walter T. Hughes; "Assessment of Gestational Age and Development at Birth" by Lula O. Lubchenco; "Heat Production and Thermoregulation in the Small-For-Date Infant" by John C. Sinclair; "Growth and Development of Small-For-Date Newborns" by Robert A. Beargie, Vernon L. James, Jr., and John W. Greene, Jr.; "Clinical and Therapeutic Aspects of Fetal Malnutrition" by Robert H. Usher; "Small-For-Date Babies" by Billy F. Andrews, Vichien Lorchirachoonkul, and Robert J. Shott; and "The Role of the Neonatalogist" by Robert H. Usher. Bibliographies accompany most of these articles.

24. Apgar, V., and James, L.S.: "Further Observations on the Newborn Scoring System," *American Journal of Diseases of Children*, 104:419-428, Oct., 1962.

The experience of the authors between 1952 when the scoring system was introduced and 1960 is summarized, and additional applications of the method are considered. The values of the system for predicting the survival of premature and full term infants, for neonatal research, for selecting infants for resuscitation, and for use as a basis for comparing the state of the newborn with later mental development are among the topics discussed. While the usefulness of this method is maintained, it is noted that it can not replace the thorough physical examination or careful serial observation during the newborn period.

25. Apgar, Virginia: "The Newborn (Apgar) Scoring System; Reflections and Advice," *Pediatric Clinics of North America*, 13:645-650, Aug., 1966.

Two suggestions are made in relation to the author's belief that this scoring system "is not working well as a baseline for future follow-up studies." These are that the scorer be someone other than the person delivering the infant, and that "an automatic method of announcing the passing of 60 seconds" following birth be used. The importance of determining the 1 minute score so that needed treatment can be initiated promptly is stated.

26. "Apnea - Alarm Mattress Insures Safe Sleep for Premature Infant," *Journal of the American Medical Association*, 210:1183, Nov. 17, 1969.

Such a mattress that "detects and sounds an alarm when a premature infant stops breathing" is described. No electrodes are attached to the baby.

27. "Apnea Alarm Monitor," *Postgraduate Medicine*, 44:32, Dec., 1968.

Pictured and described is such a monitoring system "which sounds an alarm early enough to prevent brain damage or death" in premature infants. "The device incorporates a warning alarm system based on fluctuations in electric current between electrodes attached to the infant's chest. If the infant stops breathing, these variations cease. An alarm activated 20 seconds later alerts the nursing staff."

28. Appenzeller, Otto; Snyder, Russell D.; and, Kornfeld, Mario: "Sural Nerve Biopsies in Pediatric Neurological Disorders," *Developmental Medicine and Child Neurology*, 12:42-48, Feb., 1970.

The methods used and the results obtained when 18 children with various neurological disorders were subjected to sural nerve biopsy are reported. It is suggested that this technique may be useful to the physician when diagnosing neurological and neuromuscular disorders.

29. Ardan, G.M., and Kemp, F.H.: "Some Important Factors in the Assessment of Oropharyngeal Function," *Developmental Medicine and Child Neurology*, 12: 158-166, Apr., 1970.

"The radiological findings in 200 children with abnormalities of speech and swallowing have been reviewed and contrasted with normal children. The criteria used for the assessment of abnormality are given." A classification of the cases with abnormalities is then presented.

30. "Artificial Placenta Mothers Lamb Fetus," *Medical World News*, 10:18, May, 1969.

A method, developed by two National Heart Institute researchers, whereby lamb fetuses have existed in an artificial placenta unit is explained. Infection has been the cause of death after approximately two days, but the investigators hope "this problem will be eliminated with a new filter." The implication for the future is that such a system may be of use with human fetuses, distressed in utero, or with premature infants.

31. Aubry, Richard H., and Nesbitt, Robert E.L., Jr.: "High-Risk Obstetrics. I. Perinatal Outcome in Relation to a Broadened Approach to Obstetric Care for Patients at Special Risk," *American Journal of Obstetrics and Gynecology*, 105:241-247, Sept., 15, 1969. (Series: For II see #695, III see #32, IV see #721, V see #33, VI see #250.)

The experience of the authors with a program "to provide exemplary individual care" to recognized high risk obstetric patients is described. The objectives of the program are listed, the patient selection method is explained, and special features of the program are mentioned. The results of the pregnancies in this specially treated group were compared with the past pregnancy results of the group. The perinatal mortality and the low birth weight rates were lowered in the program pregnancies; however the per cent of low birth weight infants born after 36 weeks of gestation was increased.

32. Aubry, Richard H., and Nesbitt, Robert E.L., Jr.: "High-Risk Obstetrics. III. Cytohormonal Evaluations and Their Practical Utility in Managing High-Risk Patients," *American Journal of Obstetrics and Gynecology*, 107:48-64, May 1, 1970. (Series: For I see #31, II see #695, IV see #721, V see #33, VI see #250.)

Twenty normal and 133 high-risk obstetrical patients were assessed on "a battery of 4 tests - urinary estriol, pregnanedial, and quantitative chorionic gonadotropin excretion as well as vaginal hormonocytology as determined by the karyopknotic index." The high-risk group consisted of cases of diabetes (38), chronic hypertension (52), and repeated premature births (43). Laboratory methods are described. Reported and compared to the values in the normal control group are the cytchormonal values for the high-risk patients who had normal outcomes of pregnancy, the values for those who experienced fetal death in utero, the values for those who experienced spontaneous premature labor, and the values for those who were delivered of live, term, low birth weight babies. "The predictive reliability for each assessment singly and in combination was determined." Estriol was found to be "the most sensitive reflector of fetal status in states of both chronic and acute stress." The implications from the data for perinatal mortality and morbidity are discussed.

33. Aubry, Richard H., and Nesbitt, Robert E.L., Jr.: "High-Risk Obstetrics. V. Cytohormonal and Interhormonal Relationships in Normal and Abnormal Pregnancy," *American Journal of Obstetrics and Gynecology*, 107:990-1001, Aug. 1, 1970. (Series: For I see #31, II see #695, III see #32, IV see #721, VI see #250.)

"Serial estriol, pregnanediol, and chorionic gonadotropin excretion and simultaneously obtained hormonal vaginal cytology as determined by the DPI" (karyopknotic index) were studied in a normal control group of 20 pregnant women, in a group of 93 women having obstetric problems but normal outcome of pregnancy, and in a group of 31 women having obstetric problems and abnormal outcome of pregnancy. Presented are the clinical features of the groups, the laboratory methods, and results concerning cytohormonal correlations in each group, the "endocrine environment with KPI elevated (> 10%)," the "sensitivity and reliability of cytohormonal correlations in late pregnancy," and chorionic gonadotropin - cytohormonal correlations. "A Hypothesis capable of explaining these relationships is discussed and its clinical implications are presented."

34. Bacola, Eleni; Behrle, Franklin C.; de Schweinitz, Louise; Miller, Herbert C.; and Mira, Mary: "Perinatal and Environmental Factors in Late Neurogenic Sequelae. I. Infants Having Birth Weights Under 1,500 Grams," *American Journal of Diseases of Children*, 112:359-368, Oct., 1966. (Series: For II see #35.)

A group of infants, weighing between 1,001 - 1,500 grams at birth, were studied carefully from birth for approximately eight days with emphasis placed on observation of respiratory activity. Methods are described. Extensive follow-up examinations were given to 40 of these children at a mean age of 4.3 years. Examination procedures are explained. Given findings include a classification of the children according to mental development, neurological defect incidence, relationships revealed between mental development and the factors of birth weight and gestational age, sexual differences with respect to mental capacities, incidences of apnea at birth, late apnea, RDS, and maternal toxemia and their relationships to subsequent mental development. Also reported are the delivery methods used, type of analgesia used in delivery, time of onset of feeding the newborns, and socioeconomic factors. One-half of these children were found to have definitely retarded or borderline intelligence. Six infants had neurological defects.

35. Bacola, Eleni; Behrle, Franklin C.; de Schweinitz, Louise; Miller, Herbert C.; and Mira, Mary: "Perinatal and Environmental Factors in Late Neurogenic Sequelae. II. Infants Having Birth Weights from 1,500 to 2,500 Grams," *American Journal of Diseases of Children*, 112:369-374, Oct., 1966. (Series: For I see #34.)

Forty-eight infants, weighing between 1,500 - 2,500 grams at birth, were carefully studied from birth with added emphasis placed on respiratory activities. Methods of study and care were the same as in the above article. Extensive follow-up examinations were given, and procedures are described. Findings were generally reported on the same aspects as were considered in the above article. There was no relationship found in these infants between neonatal respiratory difficulties and later subnormal mental development. Socioeconomic factors were found to be significantly related to mental development. "Results of the two present studies suggest that with increasing birth weight there is also some alteration of factors responsible for these late sequelae."

36. Baird, Dugald: "The Epidemiology of Prematurity," *Journal of Pediatrics*, 65: 909-924, Dec., 1964.

The "factors associated with low birth weight" are divided into biologic and environmental and discussed, and the relationship of a number of factors to prematurity, seen in "primi-gravidas in the City of Aberdeen, Scotland," is presented. Included in the discussion are the influences of multiple and single pregnancy, maternal illness, emotional stress, work, bacilluria, smoking, heart size, and antenatal care. "Prematurity in underdeveloped countries" is also considered, and conclusions are drawn.

37. Baird, Henry W.; Pileggi, Anthony J.; Harley, Robison D., with the technical assistance of Johnny Justice, Jr.: "Funduscopic Photography and Fluoresiein Angioretinography in Evaluation of Children with Neurologic Handicaps," *Journal of Pediatrics*, 74:937-945, June, 1969.

This method, involving the examination of the optic fundus, and the results of its usage at the Handicapped Children's Unit of St. Christopher's Hospital for Children in Philadelphia are described. Six brief case histories accompanied by colored photographs of the retina are presented to illustrate usage of the method in cases of tuberous sclerosis, maternal rubella syndrome, Hand-Schuller-Christian disease, progressive central tapetoretinal dystrophy, late infantile amaurotic idiocy, and Tay-Sachs disease.

38. Baker, G.L.: "Design and Operation of a Van for the Transport of Sick Infants," *American Journal of Diseases of Children*, 118:743-747, Nov., 1969.

A heated, air-conditioned, well-lighted, mobile nursery van for the transport of sick infants is described. The van is equipped with incubators, suction, oxygen, cardotachometer, resuscitation equipment, and drugs. Staffed with skilled medical personnel, this van provides improved care for infants en route to a medical center in a semi-rural area. Problems incurred are described.

39. Baker, Lenox D., and Hill, Lowell M.: "Foot Alignment in the Cerebral Palsy Patient," *Journal of Bone and Joint Surgery*, 46-A:1-15, Jan., 1964.

The authors' experience with three surgical procedures used to improve foot alignment in cerebral palsied children are described. The procedures are: (1) "osteotomy of the calcaneus"; (2) "the Grice subtalar arthrodesis," both used to treat valgus deformity of the foot; and (3) "anterior rerouting of the posterior tibial tendon at the ankle to correct varus of the fore part of the foot and internal rotation of the whole foot." The value of early prevention and correction of deformities is stressed. "Our experience indicates that the three procedures described can be done at an early age without risk of growth disturbance."

40. Bangs, Tina E. *Staff Training in a Clinical Setting*. Austin, Texas: University of Texas, Program for Staff Training of Exemplary Early Childhood Centers for Handicapped Children, [1971]. 33 pp. (Staff Training Prototype Series Vol. II, No. 4.).

Designed to be used in the accompaniment of slides, this text contains a description of staff training needs and practices implemented in the "Model Program for Early Education of Handicapped Children" at the Houston Speech and Hearing Center. "Principles, problems and solutions related to Staff Training in a Clinical Setting" are discussed. Problems and solutions as they occurred in the Project are separately presented in the areas of staff training needs; an evaluation program; the appointment of an Advisory Board; parent involvement; the selection, storage, and retrieval of "materials and media"; volunteer services; "assessment tools and techniques"; "curriculum design and implementation"; "behavior modification"; the development of a budget; the "dissemination of information"; and funding.

41. Banker, Betty Q.: "The Neuropathological Effects of Anoxia and Hypoglycemia in the Newborn," *Developmental Medicine and Child Neurology*, 9:544-550, Oct., 1967.

Described are the effects on the newborn brain of anoxia and hypoglycemia. Anoxia more frequently affects the periventricular white matter in premature infants, while after the second week of life the subcortical white matter or the gray matter alone is more likely to be affected. When anoxic changes are seen in the white matter, the gray matter is usually affected also. Cerebral changes seen in three infants with hypoglycemic encephalopathy are described. It is concluded that although the neuropathological changes in the newborn that result from hypoglycemia are quite distinctive, the clinical manifestations are similar. Both are important causes of infantile cerebral palsy.

42. Banks, Henry H., and Green, William T.: "Adductor Myotomy and Obturator Neurectomy for the Correction of Adduction Contracture of the Hip in Cerebral Palsy," *Journal of Bone and Joint Surgery*, 42-A:111-126, Jan., 1960.

Between 1940-1956 surgical procedures to correct adduction contracture of the hip were performed on 89 cerebral palsied patients at the Children's Hospital, Boston. This article is concerned with the follow-up of these patients. Seventy-four were available for "end-result" evaluation and study. The patients are described as is the treatment, the operative procedure, the postoperative care, the method of evaluation, and the results. Forty-six of the patients were five years of age or under at the time of surgery. The results tended to refute the theory that such procedures should not be performed until growth has been completed. "Our experience has been that surgery adequately performed for proper indications and followed by very careful postoperative management yields good results."

43. Banks, Henry H., and Panagakos, Panos: "Orthopaedic Evaluation of the Lower Extremity in Cerebral Palsy," *Clinical Orthopaedics and Related Research*, 47:117-125, July-Aug., 1966.

The steps taken to completely evaluate orthopedically the cerebral palsied lower limbs include the investigation of the past history of the patient, the actual orthopedic evaluation, and the planning for a therapy program based on assessment results. The history of the birth, the process of motor development, and the developmental rate are factors that need to be considered in regard to the patient's past history. When evaluating the patient, is is important to observe spontaneous activity; to determine the patient's maximum performance level; to assess the patient's neurological status; to determine the amount of lower limb voluntary movement and control; to assess passive movement in the hip, the knee, and the foot; to assess muscle strength; to take various measurements; and to assess the ability to sit, the stance, and the gait of the patient. The value of roentgenograms, photography and the tests from related areas in the assessment process is discussed, and conclusions are presented.

44. Barnet, Ann B.: "Evoked Potentials in Handicapped Children," *Developmental Medicine and Child Neurology*, 13:313-320, June, 1971.

The uses and methods of sensory evoked response recording are described. "The major diagnostic application at present is in the testing of hearing." EEG evoked response audiometry and its applicability with the young and/or handicapped child are discussed. Also considered are the uses of visual evoked response recording and somatosensory evoked potentials and other possible uses of sensory evoked responses. "Current research indicates that evoked response methods will be of value in increasing our understanding of sensory, perceptual and cognitive functions in both the normal and abnormal child."

45. Barnet, Ann B., and Lodge, Ann: "Diagnosis of Deafness in Infants with the Use of Computer-Averaged Electroencephalographic Responses to Sound," *Journal of Pediatrics*, 69:753-758, Nov., 1966.

A study is presented that involved the use of encephalographic audiometry to evaluate the hearing of 22 infants, ages 1 to 8 months, "in whom the diagnosis of hearing loss was considered because of maternal first trimester rubella." Procedures and results are described, and the applicability of this method as a diagnostic aid for other groups of young children is discussed. The findings indicated hearing loss to be present in 12 of the 22 infants, and these findings "correlated highly with those gained by clinical evaluation of the infants' behavior in response to auditory stimuli." "EEG audiometry appears to be a valuable adjunct in the early diagnosis of auditory defect."

46. Barnet, Ann B., and Lodge, Ann: "Diagnosis of Hearing Loss in Infancy by Means of Electroencephalographic Audiometry," *Clinical Proceedings of Children's Hospital of the District of Columbia*, 23:1-18, Jan., 1967.

Electroencephalographic audiometry was used to assess the hearing of 22 infants, ages 1 to 8 months, who had prenatal rubella syndrome. In 12 of the infants deafness was diagnosed with the results correlating "highly with those gained by clinical evaluation of the infants' behavior in response to auditory stimuli." Clinical data on the 22 infants, the electroencephalographic methods and analysis, and findings are presented. Comment is made on the importance of early diagnosis on the deaf child's development.

47. Barnett, H.R., and Nevin, M.: "The Value of the Nile Blue Test in Estimating Fetal Maturity in Normal and Complicated Pregnancies," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 77:151-155, Feb., 1970.

Two groups of patients were studied by this described method. In Group I were patients of known gestational duration of from 23 to 42 weeks. A correlation was found between the number of fat cells in the amniotic fluid and fetal maturity. The method was concluded to be useful in the last four weeks of pregnancy. In Group II were "a high proportion of complicated pregnancies," and the actual gestational duration was often in doubt. "In 14 out of 15 patients in this group the results of the test were correct and helpful in the management."

48. Barnitt, R.E.: "Aids for the Multi-Handicapped Child," *Physiotherapy*, 57: 418-424, Sept. 10, 1971.

Two aims of such aids are stated: "1) to make the child easier to handle in the home/nursery/school; 2) to provide the child with every opportunity for gaining experience and independence in play and self-care activities." Numerous aids for the handicapped child from birth to approximately ages 7 - 8 are described in the following areas: chairs, tables, feeding, dressing, toilet training, hygiene, "foam as an aid," communication, and play.

49. Barrett, Mary L.; Hunt, Valerie V.; and Jones, Margaret H.: "Behavioral Growth of Cerebral Palsied Children from Group Experience in a Confined Space," *Developmental Medicine and Child Neurology*, 9:50-58, Feb., 1967.

The effects of group experience in a small space on the verbal, motor, and social behavior of 10 cerebral palsied children with a mean age of 32.5 months were studied over a 4 1/2 month's period. The children enjoyed and profited from the experience. Improvement was noted in social awareness and peer interaction, as well as in social, verbal, and motor activity. Recommendation is made for the use of the program in the treatment of such children.

50. Barrett, Mary L., and Jones, Margaret H.: "The 'Sensory Story': A Multisensory Training Procedure for Toddlers. 1. Effect on Motor Function of Hemiplegic Hand in Cerebral Palsied Children," *Developmental Medicine and Child Neurology*, 9:448-456, Aug., 1967.

The repetition of a multi-sensory story experience was used in an attempt to increase motor function in the affected hand of six young hemiplegic children. The story told, appropriate for the two-year-old child, is duplicated, and the method of presentation is given. A form was devised to record responses to each aspect of the story. A significant increase in the spontaneous use of the affected hand was seen during the structured sessions, and this increased usage appeared to continue in other play activities.

51. Barrie, Herbert: "The Apgar Evaluation of the Newborn Infant," *Developmental Medicine and Child Neurology*, 4:128-132, April, 1962.

The Apgar score, including the method of scoring, is explained, and favorable work by Apgar and others, in which the score was correlated with morbidity and mortality in 15,348 infants, is reported.

52. Bass, Norman H.; Netsky, Martin G.; Young, Elizabeth: "Effect of Neonatal Malnutrition on Developing Cerebrum. I. Microchemical and Histologic Study of Cellular Differentiation in the Rat," *Archives of Neurology*, 23:289-302, Oct., 1970. (Series: For II see #53.)

Malnutrition was experimentally produced for the first 21 days of life in rats in order to microchemically and histologically study the events that occurred in the somatosensory area of the cerebrum. After 21 days the rats were allowed to nurse and were then weaned to "a standard rodent diet." A control group consisted of rats who were adequately fed throughout the experiment. Both groups were divided into 5 subgroups and were decapitated at 10, 20, 30, 40, or 50 days of age. Detailed examination methods are given, and results concerning the histological study, DNA, ganglioside sialic acid, RNA, wet weight, total solids, water content, and total proteins are described. "Persistent and progressive chemical and histologic abnormalities despite subsequent recovery of body weight" were the primary result. Implications for man are considered, and results are analyzed.

53. Bass, Norman H.; Netsky, Martin G.; and Young, Elizabeth: "Effect of Neonatal Malnutrition on Developing Cerebrum. II. Microchemical and Histological Study of Myelin Formation in the Rat." *Archives of Neurology*, 23:303-313, Oct., 1970. (Series: For I see #52.)

Under the same conditions as in the above article, malnourished and control rats were studied to assess "the accumulation of total lipids, cerebrosides, cholesterol, and proteolipid proteins during myelinogenesis in the cerebrum." Methods and results of the comparisons made of the two groups at 10, 20, 30, 40, and 50 days of age are described. On the basis of results "it is postulated that decreased formulation of myelin resulting from neonatal malnutrition is produced by damage to many glial cell precursors which fail to undergo the differentiation necessary for the formation of normal myelin."

54. Battaglia, Frederick C.: "Intrauterine Growth Retardation," *American Journal of Obstetrics and Gynecology*, 106:1103-1114, Apr. 1, 1970.

The topic and pertinent studies are reviewed. It is noted that while the neonatal mortality rate is higher in premature low birth weight babies than in term intrauterine growth-retarded babies, the latter group has a higher rate of "major congenital anomalies and of death caused by them." Premature and intrauterine growth-retarded infants are compared with respect to "body composition differences." Other topics considered include the incidence of and the prenatal and postnatal diagnosis of intrauterine growth retardation, the relationship between placental insufficiency and intrauterine growth retardation, the obstetric and management problems of intrauterine growth retardation, and the later developmental course of intrauterine growth-retarded infants.

55. Battaglia, Frederick C., and Lubchenco, Lulu O.: "A Practical Classification of Newborn Infants by Weight and Gestational Age," *Journal of Pediatrics*, 71:159-163, Aug., 1967.

Presented is a proposed method of classifying newborns by gestational age and birth weight. The infants are divided into nine groups. Also discussed are the advantages of the method in terms of the early identification of high-risk neonates in the nursery and "the possibility of superimposing neonatal mortality rates upon gestational-age and birth-weight data."

56. Battle, Constance U.: "Fetal Electroencephalography and the Fetal Brain; New Approach to the Prevention of Fetal Brain Damage," *Clinical Pediatrics*, 9:148-151, Mar., 1970.

Animal and human studies on the EEG response in asphyxia, the EEG and evoked response techniques, and the fetal EEG response when drugs are administered to the mother are described. Past work on the human fetal EEG is briefly reviewed, and future possibilities are presented.

57. Bax, Martin C.O., ed.: *Hemiplegic Cerebral Palsy in Children and Adults*. London: National Spastics Society, 1961. 220 pp. (Little Clubs Clinics in Developmental Medicine, No. 4.).

Contained in this volume are the 42 papers presented at an International Study Group conference held at Wills Hall, Bristol in September, 1961. Many facets of hemiplegia are explored in the papers, including etiology, early manifestations, disturbances of growth, motor disorders, intelligence, visual perception disorders and abilities, psychological problems, and epilepsy. Several papers are concerned with assessment factors and aspects of treatment, and several deal specifically with the young child.

58. Bax, Martin, and MacKeith, Ronald: "Does Early Recognition Help," *Developmental Medicine and Child Neurology*, 11:411-412, Aug., 1969.

This editorial points out some of the objectionable factors resulting from the early identification of handicaps, but the authors "remain in favour of early identification." They feel that, particularly in cases of cerebral palsy and mental retardation, early identification may produce new information both on "damaging" and "protective factors." However, treatment programs and means of giving parental support should be constantly reassessed to avoid harmful effects and to ensure maximum benefit.

59. Bax, Martin, and MacKeith, Ronald (eds.): *Minimal Cerebral Dysfunction*. Papers from the International Study Group held at Oxford, September, 1962. London: Spastics Society in association with Heinemann Medical Books, 1963. 104 pp. (Little Club Clinics in Developmental Medicine, No. 10.).

While many of the papers resulting from this Study Group and published in this volume deal with problems of the school age child, several would be of interest to those concerned with the younger child. The problem of defining the concept is the topic of several articles. Methods of assessment and behavioral difficulties are also presented. Divided into six groups, the participants discussed relevant problems. The reports of these groups are included.

60. Bay, Malinda G.: "A Preschool Program for Children with Cerebral Palsy," *Children*, 12:105-108, May-June, 1965.

The Cooperative Pre-School Center of the Cerebral Palsy Association of Western New York, Inc. is described. Cerebral palsied children, ages 3 - 7 years, are allowed to enroll for a trial period of five months and may then remain if progress is demonstrated in one of several enumerated areas. Successful efforts made in the areas of toilet training and intellectual development are reported, and a typical day at the school is described.

61. Beals, Rodney K.: "Spastic Paraplegia and Diplegia; An Evaluation of Non-Surgical and Surgical Factors Influencing the Prognosis for Ambulation," *Journal of Bone and Joint Surgery*, 48A:827-846, July, 1966.

The motor development in spastic paraplegic and diplegic children is described, based on the study and evaluation of such development in 93 such children until age 7 years or more. A "severity index" was formulated and was used in prognosticating the ability of these children to walk. This index is "the months of motor development at the chronological age of 3 years" with a range possible of from 0 to 36. It was found to be "reasonably accurate at the age of 3 years." Methods of determining the "severity index" are given. Also studied was the relationship between the prognosis for walking and upper extremity motor involvement, intelligence, birth weight, hip dislocation, and seizures. Several generalizations concerning the use of surgical procedures in cases of spastic paraplegia and diplegia are listed. A program of management, based on the "severity index" is presented. The Appendices include the criteria used in the motor development tests.

62. Beard, Alice; Cornblath, M.; Gentz, J.; Kellum, Mike; Persson, Bengt; Zetterström, Rolf; and Haworth, J.C.: "Neonatal Hypoglycemia: A Discussion," *Journal of Pediatrics*, 79:314-324, Aug., 1971.

On these pages is presented the proceedings of a symposium at which the above "investigators with special interests in this subject" answered specific questions concerning "the pathogenesis, clinical manifestations, and management" of neonatal hypoglycemia.

63. Beard, Alice G.; Panos, Theodore C.; Burroughs, James C.; Marasigan, Benito V.; and Öztalay, A. Gulen: "Perinatal Stress and the Premature Neonate. I. Effect of Fluid and Calorie Deprivation," *Journal of Pediatrics*, 63:361-385, Sept., 1963. (Series: For II see #64.)

The literature on the subject is reviewed. Serial observations were made on 46 premature infants from birth to age 6 days to study metabolic adjustments. Although some of the infants had no other complications except prematurity (the controls), some had "asphyxia as expressed by an initial Apgar 1 to 3 ratings," mothers with toxemia, respiratory distress, or had breech delivery. No fluid or food was given any of the babies for the first 72 hours of life. Treatment methods and much data on the individual infants are presented. The analyzed data is explained according to the complications manifested with data on the controls and on the infants who died also given. "Basic similarities in the patterns of change in all groups were remarkable," and the seriousness of prematurity in combination with a low Apgar score and/or respiratory distress is stressed.

64. Beard, Alice G.; Panos, Theodore C.; Marasigan, Benito V.; Eminians, John; Kennedy, H. Frazier; and, Lamb, John: "Perinatal Stress and the Premature Neonate. II. Effect of Fluid and Caloric Deprivation on Blood Glucose," *Journal of Pediatrics*, 68:329-343, Mar., 1966. (Series: For I see #63.)

A study, involving 156 premature and 60 full term newborns, was conducted to investigate the effects when feeding was initiated at age six hours or delayed until age 72 hours. Within the premature group were those infants without complications, those with respiratory distress, those who were anoxic, and those who had toxemic mothers. Findings are reported for each of these subgroups of prematures and for the full term babies. Conclusions are listed: "It is concluded that early feeding of newborn premature infants offers the advantages of decreasing hypoglycemia and ketonuria and increasing glycogen storage." "No harmful effects of early feeding were identified in the present study."

had toxemic mothers. Findings are reported for each of these subgroups of prematures and for the full term babies. Conclusions are listed: "It is concluded that early feeding of newborn premature infants offers the advantages of decreasing hypoglycemia and ketonuria and increasing glycogen storage." "No harmful effects of early feeding were identified in the present study."

65. Beard, R.J.; Bain, C.; Johnson, D.A.N.; and, Bentall, R.H.C.: "Suction Amnioscopy for Fetal Blood-Sampling," *Lancet*, 1:330-331, Feb. 14, 1970.

A method is described of measuring fetal scalp blood pH by using a suction amnioscope. Usage of both this amnioscope and a normal one in 25 cases showing signs of fetal distress or being "otherwise 'at risk'," resulted in a high correlation between the two sets of pH values. The suction amnioscope is suggested for "difficult cases," "and it could make routine sampling easier and more reliable for the less experienced operator."

66. Beard, R.W.: "Foetal Diagnosis," *Proceedings of the Royal Society of Medicine*, 61:1247-1253, Nov., 1968.

The value of fetal diagnosis in the prevention of perinatal mortality is discussed as are several of the fetal diagnostic tests and "their application to clinical problems." Considered at length are the technique and value of amnioscopy and the "diagnosis of fetal asphyxia during labour." Future needs and unsolved problems are mentioned. A "Discussion" follows the paper.

67. Beard, R.W.; Morris, E.D.; and Clayton, S.G.: "Foetal Blood Sampling in Clinical Obstetrics," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 73:562-570, Aug., 1966.

The method used and the results of the use of fetal blood sampling at Queen Charlotte's Hospital in London during 1965 are described. The procedure was found to be useful in detecting fetal asphyxia.

68. Beard, R.W.; Morris, E.D.; and, Clayton, S.G.: "pH of Foetal Capillary Blood as an Indicator of the Condition of the Foetus," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 74:812-822, Dec., 1967.

In order to investigate discrepancies that have occurred in some cases "between pH and the expected condition of the baby," fetal capillary blood samples were obtained no longer than 30 minutes before delivery from 176 patients having signs of clinical distress. Method of collection and clinical aspects are described. Results concerning the comparison of pH values to the subsequent condition of the infants, the obtaining of serial samples in 92 patients, clinical signs, and perinatal mortality are presented. Findings are discussed, and conclusions are listed.

69. Beard, R.W., and Roberts, G.M.: "A Prospective Approach to the Diagnosis of Intrauterine Growth Retardation," *Proceedings of the Royal Society of Medicine*, 63:501-502, May, 1970.

The term, small-for-dates baby, is defined. Preliminary results of a study of intrauterine growth retardation diagnosis, in which three approaches were used, are reported. In the first part of the study, the number of small-for-dates babies born at Kings College Hospital during a one-year period among all births there for that period was determined. Secondly, "the accuracy of predicting growth retardation by clinical observation" was determined. Finally, placental function tests were conducted on suspect cases to assess fetal status.

70. Beaugard, Peter A.: "A Newborn Timer," *Obstetrics and Gynecology*, 35:481-482, Mar., 1970.

Pictured and described is an electronic timer that was developed to be more exact in the timing of one and five-minute Apgar scores.

71. Begneaud, Wallace P., Jr.; Hawes, Truman P., Jr.; Mickal, Abe; and, Samuels, Monroe: "Amniotic Fluid Creatinine for Prediction of Fetal Maturity," *Obstetrics and Gynecology*, 34:7-13, July, 1969.

When amniotic fluid specimens were obtained and analyzed for creatinine content, as described, in pregnant women having complicated and uncomplicated pregnancies, creatinine values were seen to increase with gestation. "A creatinine level of less than 1.5 mg/100 ml. correlated well with a gestational length of less than 37 weeks and a level of more than 2 mg/100 ml. pointed to a pregnancy of more than 37 weeks." A correlation was also found between creatinine values and birthweights. Limitations of this method of assessing fetal maturity and possible reasons for the rise in creatinine values are discussed. When the infants having "adequate records of nursery behavior" were studied, mortality and morbidity rates were revealed to be much higher in those "infants with amniotic fluid creatinine values of less than 1.5 mg/100 ml."

72. Behrman, R.E., and Hsia, D.Y.Y.: "Summary of a Symposium on Phototherapy for Hyperbilirubinemia," *Journal of Pediatrics*, 75:718-726, Oct., 1969.

Summarized under general subject headings is the information presented at a symposium held in June, 1969 in Chicago "under the auspices of the Department of Pediatrics, Loyola University Stritch School of Medicine and the National Foundation-March of Dimes, Medical Department." The purpose of the symposium "was to review and evaluate available information on the effect of light on bilirubin metabolism and to delineate, as far as possible, the clinical implications which could be drawn from our present knowledge." Topics summarized include: "A General Perspective," "Conversion of Hemoglobin to Bile," "Bilirubin Toxicity," "The Effects of Light on Bilirubin Metabolism," "Other Biologic Effects of Light," "Untoward Effects of Phototherapy," "Prevention Versus the Treatment of Hyperbilirubinemia," "The Administration of Phototherapy," and "Guidelines in Light Therapy."

73. Behrman, Richard E.: "Kernicterus Associated with Perinatal Asphyxia and Drug Therapy," *Clinical Pediatrics*, 4:352-356, June, 1965.

Comments are made on the results of experimental studies on rhesus monkeys designed to determine the "factors contributing to the development of kernicterus." Such factors are listed in a table. Although they are still not clearly defined, knowledge of these contributing factors are helpful in determining the proper therapy in cases of hyperbilirubinemia when other tests are inconclusive. Also listed are a "number of interrelated considerations" concerning the passage of drugs from mother to fetus via the placenta and "suspect substances to be considered when evaluating icterus in the newborn." It is stated that in many cases it is not possible to predict the effects of a drug on the fetus or newborn in relation to the development of hyperbilirubinemia because of the many inherent and unknown dangers in any particular drug.

74. Behrman, Richard E.: "The Use of Acid-Base Measurements in the Clinical Evaluation and Treatment of the Sick Neonate," *Journal of Pediatrics*, 74:632-637, Apr., 1969.

"Asphyxiation at birth and the respiratory distress syndrome in the first day or two of life are the two major clinical problems that require an evaluation of the acid-base status of the infant during the neonatal period." Practical factors of use in the measurement of pH, pCO_2, base excess, and bicarbonate concentration are explained. Proper handling of the blood sample and awareness of the patient's condition both at the time of sampling and after analysis are stressed. Seven "clinical guidelines" are presented.

75. Behrman, Richard E., and, Fisher, David E.: "Phenobarbital for Neonatal Jaundice," *Journal of Pediatrics*, 76:945-948, June, 1970.

This article is a review of the literature on the subject.

76. Beischer, N.A.; Brown, J.B.; Macafee, C.A.J.; and, Reid, S.: "Urinary Oestriol Excretion before Accidental Haemorrhage," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 78:322-329, April, 1971.

In order to obtain information concerning "placental function before the occurrence of accidental haemorrhage," the cases of 30 women, in whom urinary estriol assays were performed before accidental haemorrhage occurred, were studied. "The correlation between retroplacental haemorrhage and fetal growth retardation is examined." Results are reported individually for those patients having severe accidental haemorrhage, mild accidental haemorrhage, threatened abortion, and subclinical accidental haemorrhage. Findings indicated that subclinical retroplacental haemorrhage may "be an i[illegible]tant cause of fetal growth retardation and may precede clinically obvious accidental haemorrhage." Evidence supported the value of routine estriol assay for the recognition of fetal jeopardy.

77. Bell, William E.; Samaan, Naguib A.; and, Longnecker, Daniel S.: "Hypoglycemia Due to Organic Hyperinsulinism in Infancy," *Archives of Neurology*, 23:330-339, Oct., 1970.

Various aspects of hypoglycemia are reviewed and the belief is stated that attempts should be made to separate cases of hypoglycemia with hyperinsulinism from idiopathic cases. Two cases "with onset of hypoglycemia in infancy due to hyperinsulinism" and resulting in gross brain damage are reported in order to illustrate diagnostic problems, etc. The treatment of hypoglycemia is considered, and it is felt that surgery is indicated to prevent brain damage if medical therapy does not result in adequate blood glucose level.

78. Benson, Ralph C.; Berendes, Heinz; and, Weiss, William: "Fetal Compromise During Elective Caesarean Section. II. A Report from the Collaborative Project," *American Journal of Obstetrics and Gynecology*, 105:579-588, Oct. 15, 1969. (Series: For I see #79.)

The outcome of 405 cases of normal, repeat, elective Caesarean section, delivered between the 37-40th weeks of gestation, and the outcome of 8,031 cases with similar characteristics but delivered vaginally after spontaneous onset of labor were compared. More babies delivered by Caesarean section "were undergrown," and neonatal mortality was higher in this group. With respect to Apgar scores, infants delivered by Caesarean section had lower scores over-all and especially when delivered under general anesthesia. The pediatric-neurological examination at age four months revealed more definite or suspected neurological defects (16%) in the babies delivered by Caesarean section than in those delivered vaginally (10%). These differences were not revealed in the examination at age one year. No significant differences in four month examination results were noted between the infants of mothers who had had general versus regional anesthesia.

79. Benson, Ralph C.; Shubeck, Frank; Clark, William M.; Berendes, Heinz; Weiss, William; and, Deutschberger, Jerome: "Fetal Compromise During Elective Caesarean Section: A Report from the Collaborative Project," *American Journal of Obstetrics and Gynecology*, 91:645-656, Mar. 1, 1965. (Series: For II see #78.)

One hundred and forty-five cases of repeat, elective, "term" Caesarean section with uncomplicated pregnancy were compared to 1883 cases of repeat, uncomplicated, "term," vaginal deliveries with respect to neonatal mortality, neonatal Apgar scores at one and five minutes, and pediatric-neurological examination results at the ages of four months and one year. Also fetal outcome from general anesthesia was compared to that from regional anesthesia. No neonatal deaths occurred in the patients who received general anesthesia; three deaths occurred in those who received regional anesthesia. Examination results were found to favor vaginal delivery. A lengthy "Discussion" follows the text.

80. Benson, Ralph C.; Shubeck, Frank; Deutschberger, Jerome; Weiss, William, and, Berendes, Heinz: "Fetal Heart Rate as a Predictor of Fetal Distress; A Report from the Collaborative Project," *Obstetrics and Gynecology*, 32:259-266, Aug., 1968.

The fetal heart recordings from 24,863 labors in the Collaborative Project were analyzed as described. Four fetal heart rate "indicators" were selected to study: "(1) standard deviation of FHR, (2) maximum drop from average FHR, (3) lowest FHR recorded, and (4) number of consecutive drops in FHR." The association of these four variables with perinatal mortality, five-minute Apgar scores, the motor function of the infant at age eight months, and "the presence of definite pediatric neurologic abnormality at 1 year" was determined. Also measured was the association of the four variables with the "control variables" of "(1) birthweight of the infants, (2) the administration or denial of maternal anesthesia, and (3) the number of FHR observations made on each fetus." Conclusions are listed including the finding that "no reliable single auscultatory indicator of fetal distress exists in terms of fetal heart rate (FHR), save in an extreme degree."

81. Benton, John W.; Moser, Hugo W.; Dodge, Philip R.; and, Carr, Sheila: "Modification of the Schedule of Myelination in the Rat by Early Nutritional Deprivation," *Pediatrics*, 38:801-807, Nov., 1966.

Newborn albino rats were nutritionally deprived as described until 21 days of age when they were weaned and allowed "an unlimited supply of food." Control rats were allowed to nurse normally from birth. At two to three weeks of age the deprived rats were characterized by "diminished somatic growth" with weight in many cases being one-half that of the controls. "Brain weight, total brain lipids, cholesterol, and phospholipids were reduced to approximately 80% of the control. Brain cerebrosides were affected to a greater extent than the other lipids, being only 50% of the control values. Histological sections showed less myelin." By six weeks of age, those deprived rats who had been allowed unlimited food for about three weeks were characterized as having "body weight, brain weight, and concentrations of the brain lipids...essentially equal to those in the control animals."

82. Berel, Marianne; Diller, Leonard; and, Orgel, Marilyn: "Music as a Facilitator for Visual Motor Sequencing Tasks in Children with Cerebral Palsy," *Developmental Medicine and Child Neurology*, 13:335-341, June, 1971.

Thirty-four cerebral palsied children, attending a preschool and having varying degrees of brain damage, were tested on a series of musical sound patterns using an instrument similar to a xylophone. The children, the instrument, the procedures, and the results are described. "All the children were exposed alternately to the instrument in different positions under two conditions; with and without auditory feedback. The results showed (a) significantly better performance with a melodic feedback, and (b) competence under visual conditions is correlated with IQ, so that the task on a muffled instrument may indicate a measure of intelligence."

83. Berenberg, William: "Prematurity and Cerebral Palsy," *Ohio State Medical Journal*, 61:1089-1090, Dec., 1965.

This association of cerebral palsy with prematurity is reviewed with emphasis on cerebral spastic paraplegia because of its frequent incidence in prematurely born children. The clinical features of cerebral spastic paraplegia are described in order that such cases may be diagnosed early.

84. Berenberg, William: "Toward the Prevention of Neuromotor Dysfunction," Presidential Address to the American Academy for Cerebral Palsy, 1968. *Developmental Medicine and Child Neurology*, 11:137-141, April, 1969.

An increased effort is needed to prevent brain damage. Dr. Berenberg sees a great need for reducing the increasing number of premature births since the highest incidence of cerebral palsy is found in children of low birth weight. More attention should also be directed toward the respiratory distress syndrome, bilirubinemia, and enzyme disturbances. Screening techniques are needed to identify jaundice in the newborn, and genetic evaluation is important for counseling purposes. Early identification of abused children is necessary. Increased usage of ultrasonic and radioautographic brain scans will lead to earlier detection of cerebral lesions. Mention is made to the "high-risk" population and concern is shown for proper planning for identification of and care for this group. The use of drugs during pregnancy is critically discussed. Environmental, ethnic, and socioeconomic causes of brain damage need further definition and study. Great advances in the prevention of cerebral palsy have been made in the area of infectious disease, but more processes for the identification and treatment of damaging viral and bacterial agents are necessary.

85. Berenberg, William, and, Nankervis, George: "Long-Term Follow-Up of Cytomegalic Inclusion Disease of Infancy," *Pediatrics*, 46:403-410, Sept., 1970.

Twelve cases of cytomegalic inclusion disease in infancy were studied as described at from three to 12 years of age. Obstetrical, neonatal, and clinical and laboratory follow-up data are presented. "Nine manifested significant mental and/or motor retardation while three did not have significant neuromuscular residual deficit."

86. Berenberg, William, and, Ong, Geale H.: "Cerebral Spastic Paraplegia and Prematurity," *Pediatrics*, 33:496-499, Apr., 1964.

Previous studies dealing with the relationship of these two factors are reviewed, and the term "cerebral spastic paraplegia" as used in this paper is defined. Forty cases fulfilling the described criteria were studied, and findings concerning sex, age at evaluation, birth weight, perinatal factors, developmental factors, speech and hearing, eyes, seizures, and intelligence are reported. Seventy per cent of all the patients had had birth weights of less than 2,500 gms., and all had experienced developmental delay. Only 3 of the 40 had convulsive seizures, and there was only a 7.5% incidence of "gross mental retardation." One patient had a hearing loss and two had speech problem. The cases ranged in age from 19 months to 30 years at the time of evaluation.

87. Berg, D.; Mülling, M.; and, Saling, E.: "Use of THAM and Sodium Bicarbonate in Correcting Acidosis in Asphyxiated Newborns," *Archives of Disease in Childhood*, 44:318-322, June, 1969.

Studies on rabbits in which these two buffer substances were used to treat acidosis are described, applicability of the results to man are considered, and "a sequential therapy for asphyxia of the newborn" is offered in which an infection of THAM is followed by the administration of sodium bicarbonate "as soon as spontaneous or artificial respiration is established." "Such sequential therapy aims to correct the acidosis rapidly, without increasing the hypercapnia and intracellular acidosis, while avoiding the side-effects caused by THAM."

88. Bergner, Lawrence, and, Susser, Mervyn W.: "Low Birth Weight and Prenatal Nutrition: An Interpretative Review," *Pediatrics*, 46:946-966, Dec., 1970.

In this review the hypothesis that prenatal nutrition significantly influences birth weight is considered. "Birth weight is shown to have a stronger correlation with perinatal mortality than length of gestation." Examined is the effect of the environment on the fetus, including the immediate environment of the fetus, the wider maternal environment, and other extrinsic factors. In the second portion of the article, "studies that have tested the very real relationship of birth weight and nutrition" are reviewed, including observational studies during war, famine, etc., and experimental studies. Differing results regarding the hypothesis were found. A type of experiment that would possibly answer the question of the effect of maternal nutrition on birth weight is briefly mentioned. A lengthy bibliography and an appendix follow the text.

89. Bergsma, Daniel, ed.: *Bilirubin Metabolism in the Newborn*. Symposium held in Chicago, June 6, 1969 under the auspices of the Department of Pediatrics, Loyola University - Stritch School of Medicine and sponsored by The National Foundation. Baltimore: Williams and Wilkins for The National Foundation-March of Dimes, 1970. 136 pp. (Birth Defects Original Article Series, Vol. 6, No. 2).

The "present state of knowledge of bilirubin in the human infant" is reviewed in the papers of this conference published in this volume. Included among the topics are the management of neonatal hyperbilirubinemia, the role of albumin in the protein-binding capacity of bilirubin, and the effects and use of phenobarbital. Clinical experiences with phototherapy and aspects of the photodecomposition products of bilirubin are considered in several papers.

90. Berko, Frances G.; Berko, Martin J.; Thompson, Stephanie C.: *Management of Brain Damaged Children; A Parents' and Teachers' Guide*. Springfield, Ill.: C.C. Thomas, 1970, 73 pp.

This book is intended to be of value to the professionals working with and to the parents of brain damaged children. The brain damaged child and the diagnosis of brain damage are briefly described, special problems of children with brain damage are separately discussed, and practical aids to helping such children at home are presented.

91. Bevan, I.D.G., and, Truskett, I.D.: "The Identification of the High Risk Patient in Rhesus Sensitization by the Use of Post Partum Foetal Cell Counts," *Medical Journal of Australia*, 56:551-557, Mar. 15, 1969.

Fetal cell counts were taken immediately after delivery on 2000 Rh (D)- negative women who had given birth to Rh (D)- positive infants in an effort to identify a high-risk group of mothers. The effects of age, parity, multiple birth, induction of labor, caesarean section delivery, abortion, and ABO incompatibility on the number of fetal cells in the maternal circulation are described.

92. Billings, Evelyn L.: "Traumatic and Anoxic Births; Follow-Up Examination of 478 Babies," *Medical Journal of Australia*, 56:1146-1151, Dec. 6, 1969.

Two groups of babies were followed for at least the first two years of life. Group 1 contained 149 infants "who had had traumatic births." Group 2 contained 320 babies who had experienced perinatal anoxia. In Group 1 there were four cases of "major damage" and 13 cases of "minor damage." In Group 2 there were 14 cases of "major damage" and 27 cases of "minor damage." Twenty-one cases of cerebral palsy were detected. "Seven were attributable to trauma and 14 to anoxia." Further analysis of the abnormal cases is conducted, including a listing of the characteristics noted in the cerebral palsied infants. Implications of the study are listed.

93. Billinson, Michael R.: "Prematurity and Low Birth Weight Litters: A Mechanism Elicited by Thermal Stress," *American Journal of Obstetrics and Gynecology*, 108:970-974, Nov. 15, 1970.

Pregnant Albino rats were randomly placed in either heat-stressed or control groups. All animals were killed on the 21st gestational day. The thermal stress produced "increased excretions of serotonin." Premature delivery occurred when these (excretions) were excessively high. With lower levels of serotinin output low birth weight litters were produced." Possible implications concerning premature delivery in humans in cases of febrile illness, premature rupture of the membranes, and multiple pregnancy are discussed.

94. Bishop, Edward H.: "Maternal Heart Volume and Prematurity," *Journal of the American Medical Association*, 187:500-502, Feb. 15, 1964.

After a preliminary described investigation, heart volumes were measured radiographically in 300 consecutive pregnant women about the 27th week of gestation. The patients were divided into groups according to their heart size. While the incidence of prematurity was 24% in the group with the smallest hearts, it gradually declined to zero in the women having the largest hearts. Birth weight was also related to maternal heart size with those mothers having the smallest hearts delivering the smallest babies on the average. Implications and preventive measures are briefly mentioned.

95. Bishop, Edward H., and, Corson, Stephen: "Estimation of Fetal Maturity by Cytologic Examination of Amniotic Fluid," *American Journal of Obstetrics and Gynecology*, 102:654-664, Nov. 1, 1968.

A study undertaken to determine the relationship between "the number of cells in the amniotic fluid which are derived from the fetal sebaceous glands" and fetal age and stage of development is reported. The methods used to collect and stain 350 samples of amniotic fluid from 314 patients and the "5 cellular structures" found are described. Graphs show that a definite relationship was discovered. An approximate incidence of 60% prematurity occurred "when the fat-cell count was between 2 and 5%." "There were no premature infants by either weight or age when a cell count greater than 20% was reported." Exceptions are discussed. The method is felt to be a reliable way of estimating fetal maturity when the need exists. A "Discussion" follows.

96. Bishop, Edward H.; Israel, S. Leon; and, Briscoe, Clarence C.: "Obstetric Influences on the Premature Infant's First Year of Development: A Report from the Collaborative Study of Cerebral Palsy," *Obstetrics and Gynecology*, 26:628-635, Nov., 1965.

The psychologic test (mental and motor scores) administered at 8 months and the neurologic examination given at 12 months to the infants in the Study are described. The effects of "birth weight and gestational age, parity, vaginal bleeding during the prenatal period, duration of labor, presentation, and method of delivery" on these examination results for 15,992 infants participating in the Study were examined. It was revealed that birthweight was "the single factor exerting the greatest influence on all three outcomes (mental, motor, and neurologic)" and that "the premature infant who survives is burdened by a high risk of psychologic and neurologic abnormalities, their incidence being inversely proportional to the birthweight" and increased by the occurrence of complicating circumstances relating to the other variables considered.

97. Bishop, Edward H., and, Pollock, Thomas: "Fetal Exfoliative Cytology," *Obstetrics and Gynecology*, 35:909-911, June, 1970.

Analysis was made of 140 amniotic fluid specimens "to determine if the ratio between cells of various stages of maturity can be related to fetal maturity or fetal health." The fetal epithelial cells observed were classified into four types by histologic characteristics, and "the percentage of each type of cell was correlated with apparent gestational age and any subsequent observed fetal abnormality." Relationships were demonstrated and are described between parabasal cells (Type I) and gestational age and between anucleated mature cells (Type IV) and gestational age. The latter correlation was found to be more "constant and specific." Complications of pregnancy did not appear to alter the findings, and this method of estimating fetal maturity was found to be more accurate than several other listed methods.

98. Blackman, Leonard S.: "To Reach Beyond the Difference," *Perspectives on Education*, 2:18-25, Winter, 1969.

The Research and Demonstration Center for the Education of Handicapped Children and Youth at Teachers College, Columbia University, is described with regard to the objectives of the Center, the research being conducted, and the new facilities of the Center.

99. Blanchard, Irene: "Developing Motor Control for Self-Feeding," *Cerebral Palsy Journal*, 27:9, Sept.-Oct., 1966.

Briefly described is a "simple and effective" method of developing the motor control needed by the cerebral palsy child to feed himself.

100. Blattner, Russell J.: "Central Nervous System Damage and Hypoglycemia," *Journal of Pediatrics*, 72:904-906, June, 1968.

The literature on this subject is reviewed.

101. Blattner, Russell J.: "Rh-Hemolytic Disease: Progress in Prevention," *Journal of Pediatrics*, 70:648-651, Apr., 1967.

The processes of the disease are explained, and the literature concerned with prevention is reviewed.

102. Bleyer, Werner A.; Au, William Y.W.; Lange, William A., Sr.; and, Raisz, Lawrence G.: "Studies on the Detection of Adverse Drug Reactions in the Newborn. I. Fetal Exposure to Maternal Medication," *Journal of the American Medical Association*, 213:2046-2048, Sept. 21, 1970. (Series: For II see #103.)

Personal medication diaries were given to 67 private obstetrical patients for the purpose of having them record all medications taken during the last trimester of pregnancy. Methods of analyzing the diaries are described. A quite high drug intake rate was revealed. "Each mother took an average of 4.5 drug preparations containing 8.7 different drugs" of which an average of 6.9 were taken without the knowledge of the physician. The drugs most commonly used were vitamins, aspirin, and antacids in that order. The value of this type of medication record is discussed.

103. Bleyer, Werner A., and, Breckenridge, Robert T.: "Studies on the Detection of Adverse Drug Reactions in the Newborn. II. The Effects of Prenatal Aspirin on Newborn Hemostasis," *Journal of the American Medical Association*, 213:2049-2053, Sept. 21, 1970. (Series: For I see #102.)

Forty-three newborns, whose mothers had kept medication records as outlined in the above article, were "examined daily for bleeding and the results compared to the medication record." Examination and laboratory methods are described. A "Drug Group," consisting of 14 newborns "whose mothers took more than 0.3 grams of aspirin during the week prior to delivery," and a "Control Group" consisting of 17 newborns whose mothers had taken no aspirin in the last three weeks of pregnancy, were formed. "Two potentially adverse drug reactions" and three incidents of bleeding were found in the former group. One bleeding incident occurred in the Control Group. These reactions and incidents are described. More study is needed, but it is suggested that restriction of aspirin intake in late pregnancy "would seem prudent."

104. Bloakey, N.J.: "Aids for Crippled Children," *Developmental Medicine and Child Neurology*, 13:216-227, April, 1971.

Described and pictured are aids developed in the Orthopaedic Department and Splint Appliance Department at the Royal Hospital for Sick Children in Glasgow, Scotland for the crippled two to eight year old child. Included are wheelchairs, standing tables, hand-operated mobile aids, walking aids, and aids for dysarthric children. This practical equipment can be made in a hospital workshop and is inexpensive.

105. Blum, D.; Dodion, J.; Loeb, H.; Wilkin, P.; and, Hubinont, O.O.: "Studies on Hypoglycemia in Small-for-Dates Newborns," *Archives of Disease in Childhood*, 44:304-310, June, 1969.

Thirty-four infants having low birth weight for gestational age were compared to 31 normal babies on determinations of "fasting blood sugar, lactate/pyruvate ratio, blood FFA level, and response to intravenous glucagon (300 Mg./kg.)." No statistically significant difference between the two groups for any of the values was revealed. Ten infants in the small-for-dates group had hypoglycemia. Glycemia levels were promptly raised in both groups when intravenous glucagon was administered. "It is concluded that depletion of hepatic glycogen stores plays no significant role in the genesis of hypoglycaemia in 'small-for-dates' infants."

106. Bobath, Berta: *Abnormal Postural Reflex Activity Caused by Brain Lesions*, London: Heinemann Medical Books, 1965. 84 pp.

Considered in this book is the abnormal postural reflex activity found in a group of patients having central nervous system lesions. Most of the patients were children with cerebral palsy. The static reactions are grouped and described, and their effect on the child's motor behavior is discussed. Also considered are the righting and equilibrium reactions, and the roles they play in the motor development of children. The righting and equilibrium reactions "as observed on patients" are described along with methods of testing these reflexes. Also explained is the relationship found between the tonic reflexes and the righting reactions. Conclusions are presented, and references are listed.

107. Bobath, Berta: "A Neuro-developmental Treatment of Cerebral Palsy," *Physiotherapy*, 49:242-244, Aug. 10, 1963.

Four "basic principles of treatment" are listed. The need to differentiate between the factors of retarded motor patterns and abnormal motor patterns in every case of cerebral palsy is stated and is illustrated in a described case of a three year old boy "with spastic quadriplegia and some athetosis." A "short treatment plan" for the child and a chart of the child's motor patterns are presented.

108. Bobath, Berta: "The Treatment of Neuromuscular Disorders by Improving Patterns of Co-ordination," *Physiotherapy*, 55:18-22, Jan. 10, 1969.

The subject of "normal postural reactions and their importance for voluntary movements" is discussed, and the principles of treatment of the author are presented.

109. Bobath, Berta: "Treatment Principles and Planning in Cerebral Palsy," *Physiotherapy*, 49:122-124, Apr. 10, 1963.

Five aims of treatment in cerebral palsy are listed, treatment principles are discussed, and six points for the physiotherapist to consider in planning the treatment of the cerebral palsy child are listed in question form. "The purpose of this article is to show that the ultimate aim of physiotherapy in cerebral palsy should be to give the child control over his abnormal motor patterns and to provide him with a great variety of more normal postural and movement patterns which he can later learn to use for purposive movements."

110. Bobath, Berta: "The Very Early Treatment of Cerebral Palsy," *Developmental Medicine and Child Neurology*, 9:373-390, Aug., 1967.

The view is stressed that very early treatment will give the best results. Six reasons for this are discussed. Cerebral palsy must be recognized and treated early (by the age of nine months) before athetosis and spasticity are strong, and abnormal patterns of posture and movements are prevalent. Aims of treatment are presented. Normal motor development is outlined, and it is emphasized that a thorough knowledge of this development is necessary for the assessment and for the planning of treatment. Some examples of the basic postural patterns used in treatment and some of the postural patterns of normal children to be avoided in treatment are pictured.

111. Bobath, K., and Bobath, B.: "An Analysis of the Development of Standing and Walking Patterns in Patients with Cerebral Palsy," *Physiotherapy*, 48:144-153, June 10, 1962.

"The development of normal standing and walking patterns" is traced from birth to age 18 months and compared to the "standing and walking patterns in children with cerebral palsy." The tonic reflexes are discussed with the important ones listed and their individual and combined effects described. Also considered are "the use of tonic reflex activity for purposive movements" and the "compensatory motor activity" of the cerebral palsied patient. Standing and walking patterns characteristic of the spastic diplegic and paraplegic, of the athetoid, and of the hemiplegic patient are described.

112. Bobath, K., and Bobath, B.: "The Facilitation of Normal Postural Reactions and Movements in the Treatment of Cerebral Palsy," *Physiotherapy*, 50:246-262, Aug. 10, 1964.

After "some basic concepts of brain function" regarding motor activity are reviewed, the normal postural-reflex mechanism is considered. It consists of "two types of automatic reactions, the righting and the equilibrium reactions." The functions of these are outlined. Also considered are "the relationship of automatic to voluntary movement" and "'handling'" of the cerebral palsied child in treatment in order to influence muscle tone. "Principles of treatment" are listed, and "the facilitation techniques used to obtain active automatic motor responses, with a progression towards more voluntary and purposive movements once the automatic patterns are established, are described in detail." Photographs illustrate usage of the techniques on four pages.

113. Bobath, K., and Bobath, B.: "The Neuro-Developmental Treatment of Cerebral Palsy," *Physical Therapy*, 47:1039-1041, Nov., 1967.

The goals and rationale of this treatment method are explained. Emphasis in this approach is placed on "inhibiting abnormal patterns of posture and movement" and on 'facilitating' normal patterns as much as possible. Rather than restraining or controlling movement by bracing for long time periods, this method attempts to provide the cerebral palsied child "with his own control." The value of this treatment will be very limited if structural damage to muscles and joints of an irreversible nature is present when treatment is initiated.

114. Bobath, Berta, and, Finnie, Nancie R.: "Problems of Communication Between Parents and Staff in the Treatment and Management of Children with Cerebral Palsy," *Developmental Medicine and Child Neurology*, 12:629-635, Oct., 1970.

A questionnaire was sent to 45 parents of children attending the Western Cerebral Palsy Centre in an attempt to determine areas where communication was lacking between the staff and the parents. Forty questionnaires were returned. The replies were most helpful; many showed parents to be lacking insight into the problems of their children and lacking knowledge concerning home management. The original questionnaire, a revised questionnaire assembled after the survey, and replies in three cases are published. Suggestions for enhancing communication are made on the basis of the results.

115. Bobb, Bruce T.: "A Simple Opponens Splint for Children," *Journal of the American Physical Therapy Association*, 43:588, July, 1963.

Described and pictured is a device designed "to improve hand function in the young, ambulatory patient with cerebral palsy and spastic hemiplegia." Also presented is the method of construction.

116. Boggs, Thomas R.: "Mortality and Morbidity from Hemolytic Disease of the Newborn" for the Symposium on the Rh Factor, edited by Edward A. Banner. *Clinical Obstetrics and Gynecology*, 7:933-943, Dec., 1964.

The author's experience with the subject and the conditions of fetal hydrops and kernicterus are described. Prenatal precautions and care, the early interruption of pregnancy, and the care of the erythroblastic newborn are among the topics discussed.

117. Boggs, Thomas R., Jr.; Hardy, Janet B.; and, Frazier, Todd M.: "Correlation of Neonatal Serum Total Bilirubin Concentrations and Developmental Status at Age Eight Months; A Preliminary Report from the Collaborative Project," *Journal of Pediatrics*, 71:553-560, Oct., 1967.

Twenty-three thousand unselected infants, participating in the Collaborative Study on Cerebral Palsy of the NINDB were studied from birth and were developmentally evaluated at age eight months with methods given. Results of statistical analysis are presented to show that an apparent positive relationship was found to exist "between increasing neonatal hyperbilirubinemia and the incidence of low motor and/or mental scores attained at 8 months."

118. Boggs, Thomas R., Jr., and Lucine, Albert A., Jr.: "Promethazine Hydrochloride and Neonatal Bilirubin Concentrations," *Journal of Pediatrics*, 62:160-161, Jan., 1963.

No significant differences in total serum bilirubin concentrations were seen between the 51 infants of women given promethazine hydrochloride 1-6 hours before delivery and the 82 infants of women who were not given the drug.

119. Bolitho, Olga: "Traumatic and Anoxic Births; Obstetric Analysis," *Medical Journal of Australia*, 57:2:70-73, July 11, 1970.

Three hundred and fifty-three infants who had been anoxic at birth and 156 infants who had suffered birth trauma were followed. Major abnormalities were detected in 4% of the anoxic group and in 3.8% of the trauma group. "A significant increase in the incidence of cerebral palsy in the groups under consideration is established." Obstetric records of the mothers of the infants were studied. Results of investigating fetal heart rate, meconium staining of liquor, neonatal respiration, neonatal cerebral signs, parity, gestational age, maternal blood pressure and weight gain, maternal age, length of labor, presentation, and type of delivery are presented. "An attempt is made to define the type of patient liable to have a baby with cerebral palsy, in order to encourage obstetricians to try to prevent cerebral palsy in the baby."

120. Bolognese, Ronald J.; Corson, Stephen L.; Touchstone, Joseph C.; and, Lakoff, Kenneth M.: "Correlation of Amniotic Fluid Estriol with Fetal Age and Well-Being," *Obstetrics and Gynecology*, 37:437-441, March, 1971.

From two study groups totally 52 obstetric patients, 57 amniotic fluid samples were obtained. The patients ranged from 16 to 43 weeks gestation. In 20 of these cases "24-hour urinary estriol was determined concomitantly." "The relationship between length of pregnancy and concentration of estriol in amniotic fluid was statistically significant. However, no close linear correlation could be shown statistically when urinary and amniotic fluid estriol determinations were compared." Conclusions are presented.

121. Bosley, Elizabeth: "Teaching the Cerebral Palsied to Chew," *Cerebral Palsy Journal*, 27:8-9, Jul.-Aug., 1966.

Suggestions are made for increasing the cerebral palsied child's ability to chew and swallow. The importance of proper chewing reflexes for speech development is mentioned.

122. "Bouncing Sound to Get Bouncing Babies," *Medical World News*, 11:18-19, Feb. 20, 1970.

Described is an ultrasonic method of determining in high risk fetuses whether a fetus will be able to withstand vaginal delivery or whether a Cesarean section is indicated in order to increase the likelihood that a healthy baby will be delivered. Between 30-38 weeks of gestation "a dozen" uterine contractions are induced and the fetal heart rate is monitored ultrasonically. The technique used, the rationale behind it, and the results of its usage in Uruguay, are presented. The comment is made that the test will soon be in use in the United States.

123. Bowe, Edward T.: "Immunization Against Rh," *Postgraduate Medicine*, 45:110-114, Apr., 1969.

"The mechanism of Rh sensitization" and the "pathophysiology of erythroblastosis fetalis" are pictured and explained, and the "background of Rh immunization," the combined results of using anti-D gamma globulin in many studies, and a typical candidate for immunization are described.

124. Bower, T.G.R.: "The Visual World of Infants," *Scientific American*, 215:80-84, Dec., 1966.

Theories and conflicting views on the perceptual abilities of infants are reviewed. The conditioning techniques to study the perception of infants is then described. "The theory emerging from our studies and others not reported here is based on evidence that infants can in fact register most of the information an adult can register but can handle less of the information than adults can. Through maturation they presumably develop the requisite information-processing capacity."

125. Bowes, Watson A. , Jr.; Brackbill, Yvonne; Conway, Esther; and Steinschneider, Alfred: "The Effects of Obstetrical Medication on Fetus and Infant," *Monographs of the Society for Research in Child Development*, Vol. 35, No. 4, June, 1970. 55 pp.

An interdisciplinary view of this subject is presented in the three chapters of this monograph. In Chapter I the literature relating to "medications given during pregnancy, labor, and delivery, and their implications for infant outcome" is reviewed by Dr. Bowes, an obstetrician. Physiological factors are stressed. A report is given in Chapter II of a study on "Delivery Medication and Infant Outcome." "The focus of investigation here is largely on the behavioral effects for the infant of labor and delivery medication." A pediatrician, Dr. Steinschneider, presents his views on the subject in Chapter III and summarizes the material presented in the first two chapters. A lengthy bibliography is included, and in the appendix is a chart listing drugs and describing the effect of each on the fetus or newborn.

126. Bowman, J.M.: "Hemolytic Disease of the Newborn; Advances in Management," *Postgraduate Medicine*, 40:217-228, Aug., 1966.

The condition is described, and the following management methods are individually considered: exchange transfusion, early delivery, amniotic fluid examination, and intraperitoneal fetal transfusion. The experience of the author with these methods is related.

127. Bowman, John M.; Friesen, Rhinehart F.; Bowman, William D.; McInnis, A. Campbell; Barnes, Philip H.; and, Grewar, David: "Fetal Transfusion in Severe Rh Isoimmunization; Indications, Efficiency, and Results Based on 218 Transfusions Carried Out on 100 Fetuses," *Journal of the American Medical Association*, 207:1101-1106, Feb. 10, 1969.

The authors' experience with this technique over a 55 month period in Winnipeg is described.

128. Bowman, John M., and Pollock, Janet M.: "Amniotic Fluid Spectrophotometry and Early Delivery in the Management of Erythroblastosis Fetalis," *Pediatrics*, 35:815-835, May, 1965.

The experiences of the authors with these procedures are described. A "Discussion" follows the article.

129. Bradford, William D.: "The Case for Careful Examination of the Placenta; Helpful Information from the Delivery Room," *Clinical Pediatrics*, 7:716-719, Dec., 1968.

The importance of the placenta as a diagnostic aid is stressed. The normal placenta and "abnormalities of size, shape and color" are described. The implications from the following conditions are considered: abnormalities of the umbilical cord, circumvallate placenta, single umbilical artery, amnion nodosum, placental infections, twin placentas, and the transfusion syndrome. Circumstances under which the placenta should be examined are listed, and the method of examination is briefly discussed.

130. Bradtke, Louise M.; Kirkpatrick, William J., Jr.; and, Rosenblatt, Katherine P.: *Staff Training in an Institutional Setting*. Austin, Texas: University of Texas, Program for Staff Training for Exemplary Early Childhood Centers for Handicapped Children, [1971]. 39 pp. (Staff Training Prototype Series Vol. II, No. 9.).

The staff training program of the BKR Experimental Project at the Sunland Training Center in Miami is presented. This Project was funded in order that a "model program for young multiply handicapped, profoundly/severely mentally retarded children" be designed. The five-week preservice training program is outlined. The 17-page Preservice Staff Training Manual, the Preservice Training Calendar, and the Employee Performance Evaluation form are included.

131. "Brain Damage in Newborn May be Due to Kernicterus," *Journal of the American Medical Association*, 212:45, Apr. 6, 1970.

The postmortem examination results of 15 low birth weight neonates, who died at the Bronx Municipal Hospital Center in New York revealed that nine had kernicterus that had not been clinically suspected in any. It is thus felt that brain damage may occur in many surviving prematures who have moderate serum bilirubin concentrations.

132. "Brain Gain Found in Fondled Mice," *Medical World News*, 11:29, Mar. 13, 1970.

Doctors at the VA Hospital in San Fernando gave a good deal of attention to one group of infant rats and left another group "undisturbed." All rats were destroyed before 15 days of age. Upon histological examination of the brains from both groups, the researchers counted "more spines and more stained neurons" at all ages in the attention given group. "Such spines are thought to be post-synaptic receptor structures" and are not present in rats at birth. Implications and limitations of the findings are discussed.

133. Braine, Martin D.S.; Heimer, Caryl B.; Wortis, Helen; and, Freedman, Alfred M.: *Factors Associated with Impairment of the Early Development of Prematures.* Chicago: University of Chicago Press, 1966. 92 pp. (Monographs of the Society for Research in Child Development, Serial No. 106, Vol. 31, No. 4.).

This is a report of a longitudinal study undertaken to determine the extent of relationship between impaired development of premature infants and various neonatal and maternal complications of which several have been associated with early brain damage. Three hundred fifty-one negro, low social class infants having less than a 2100 gram birth weight were studied from birth to age 15 months. Fifty full-term negro infants comprised the central group. After describing the measurement and incidence of the independent variables (4 neonatal and 6 maternal complications, socio-economic variables, sex, etc.), the results are reported in detail. A 16 point summary of conclusions, a bibliography, an appendix ("The Scale of Gross Motor Development"), and a glossary are included.

134. Brand, Michael M., and Bignami, Amico: "The Effects of Chronic Hypoxia on the Neonatal and Infantile Brain; A Neuropathological Study of Five Premature Infants with the Respiratory Distress Syndrome Treated by Prolonged Artificial Ventilation," *Brain*, 92:233-254, 1969.

Five case histories of premature infants with RDS, "treated with continuous positive pressure ventilator therapy and with supplemental oxygen for periods ranging from two to seven weeks," are presented. "Progressive impairment of pulmonary function accompanied by severe carbon dioxide retention and acidosis" was evident. "The major neuropathological findings consisted of widespread vascularization and fibrillary gliosis, and involved both the brain and the spinal cord. These changes were unaccompanied by significant nerve cell loss or demyelination." These findings were felt to be due to the chronic cerebral hypoxia resulting from the impaired pulmonary function, "produced by the direct toxic effect of continuous administration of oxygen to these infants." Also discussed is the possibility that the findings "may represent an adaptive response of the central nervous system to chronic hypoxia."

135. Branstetter, Ellamae: "The Young Child's Response to Hospitalization: Separation Anxiety or Lack of Mothering Care?," *American Journal of Public Health*, 59:92-97, Jan., 1969.

Compared and analyzed as described was the behavior of three groups of 10 hospitalized children, ages 14 to 36 months. In "The Mother-Present Group" the mothers stayed day and night with their children. In "The Substitute-Mothering Group" people other than the mothers stayed with the children "most of their waking hours." In "The Mother-Absent Group" no mother-type people were with the children. Distinct differences in behavior were noted with the first two groups showing similar "much less disturbed behavior" and the latter group being "on the whole, generally unhappy and upset." A mother-substitute was found to be valuable in the reduction of "emotional upset," etc.; and this points out the fact that such distress can be prevented in such cases. It is proposed "that the emotionsl distress seen in hospitalized children in this age group originates from need deprivation - a lack of mothering care rather than from anxiety per se due to the loss of the mother as a special irreplaceable object of love."

136. Brazelton, T. Berry; Scholl, Mary Louise; and, Robey, John S.: "Visual Responses in the Newborn," *Pediatrics*, 37:284-290, Feb., 1966.

Historical aspects of the subject are reviewed. The procedure used, the behavior observed, and the results obtained from assessing visual responses in 86 full-term and 10 premature neonates are presented. At age 1 year, 87 of these babies were considered to be normal, 5 were suspect, and 4 were abnormal. None of the 9 infants in the latter two groups demonstrated positive visual responses as neonates, but 57.5% of the normal infants did. The absence of these responses "on any one examination is not a definite indication of central nervous system deficit." "The capacity of a neonate to fix, follow, and alert to a visual stimulus appears to be good evidence for an intact central nervous system."

137. Brazie, Joseph V.: "Managing Severe Erythroblastosis," *Postgraduate Medicine*, 44:122-125, July, 1968.

Among the discussed aspects of this subject are the measurement of maternal antibody titers, premature delivery, amniocentesis, intrauterine fetal transfusion, administration of gamma globulin, postnatal care of the infant, exchange transfusion, and fetal hydrops.

138. Brereton, Beatrice Le Gay, and Sattler, Jennifer: *Cerebral Palsy; Basic Abilities, A Plan for Training the Pre-School Child*. New South Wales, Australia: The Spastic Centre of New South Wales, 1967. 166 pp.

A treatment program, used at the Spastic Centre of New South Wales and "designed for the treatment of children suffering from cerebral palsy whose level of functioning is between a 3 1/2 and a 5 1/2 year old level," is presented. It entails teaching the child the 'basic abilities' normally developed in the preschool years. A brief outline of the plan is given in the "Introduction" of the book, and chapter headings follow this outline. The plan "emphasizes increasing the child's awareness of information to be obtained by contact" from movement, and from vision. Many activities designed to promote development of these abilities in the young cerebral palsied child are suggested. In Chapter 8 is explained "The Theory Behind the Treatment Plan," and four appendices are included in which studies and terms of the plan are described. A bibliography follows.

139. Bresnan, Michael J.: "Neurologic Birth Injuries; First of Two Parts," *Postgraduate Medicine*, 49:199-205, Mar., 1971. (Series: For II see #140.)

The incidence, the etiology, the distinctive features, and the treatment of several cranial and intracranial birth injuries and facial nerve birth injuries are described. Breech delivery and the usage of forceps in delivery are seen as major contributing factors. Results of several studies are reported.

140. Bresnan, Michael J.: "Neurologic Birth Injuries; Second of Two Parts," *Postgraduate Medicine,* 49:202-206, Apr., 1971. (Series: For I see #139.)

Discussed in Part Two of this article are the neurological birth injuries which occur below the neck - spinal cord injuries, peripheral nerve lesions, and vacuum extraction injuries. Incidence, etiology, distinctive characteristics, and treatment are again included in the discussion of each type of injury. A more liberal usage of Cesarean section to further reduce neurologic brain injury is advocated in the "Summary." "At present it appears that we need to give particular attention to fetal monitoring and to preventing damage secondary to 'anoxia' and prematurity."

141. Bricker, Diane, and Bricker, William: *Toddler Research and Intervention Project Report - Year I.* Nashville, Tenn.: George Peabody College for Teachers, Institute on Mental Retardation and Intellectual Development, 1971. 91 pp. (IMRID Behavioral Science Monograph, No. 20.).

Contained in this Report are a "Foreword" and an "Introduction" in which this Project's various elements are explained; an "operational model" of the Project; a description of the toddler population participating in the Project during its first year; evaluation data; descriptions of classroom procedures and parent training practices; and the presentation of the various research projects conducted during the first year of the Project. A "Summary" contains initial conclusions, and future plans are briefly mentioned. "The Toddler Research and Intervention Project is a research program structured to devise and evaluate several different aspects of educational intervention with children who are between 1 and 4 years of age and who have moderate to severe development problems."

142. Brierley, J.B.: "Problems of Hypoxia in the Genesis of Cerebral Palsy," *Cerebral Palsy Bulletin,* 3:29-33, 1961.

The various circumstances under which hypoxia can be produced are discussed. These include neonatal asphyxia, maternal anemia, intracranial hemorrhage, and epileptic seizures. Various hypotheses to explain the particular pathological results of hypoxia are presented with emphasis placed on vascular compression.

143. Brom, Sigfrid, and Finnstrom, Orvar: "Motor Conduction Velocities in Newborn Infants of Various Gestational Ages," *Acta Paediatrica Scandinavica,* 57:377-384, Sept., 1968.

The methods, results, and conclusions are presented for a study of the motor conduction velocities in the ulnar and peroneal nerves of 40 premature and full term infants. The group included cases in which pregnancy, delivery, and neonatal period had been normal; and also cases in which asphyxia had occurred, cases of "low birth weight," and cases of hyperbilirubinemia. Determining motor conduction velocities was concluded, on the basis of results, to be a valuable method for the assessment of neonatal maturity and for the determination of gestational age.

144. Brosens, I., and Gordon, H.: "The Estimation of Maturity by Cytological Examination of the Liquor Amnii," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 73:88-90, Feb., 1966.

The method used for estimating fetal maturity by cytological examination of the liquor amnii in 56 cases is described. A sharp increase in the percentage of orange-stained cells was noted after 38 weeks gestation.

145. Brosens, I.; Gordon, H.; and Baert, A.: "Prediction of Fetal Maturity with Combined Cytological and Radiological Methods," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 76:20-26, Jan., 1969.

A new radiological method of estimating fetal maturity "based on the intra-amniotic injection of a radiological lipo-soluble contrast medium (Ethiodan) for the intrauterine visualization of the fetal vernix layer" was used in combination with a method of cytological examination of amniotic fluid to estimate the maturity in 30 cases of known gestational duration. On the basis of the results, this combined method was felt to be an accurate technique. No complications were noted.

146. Broughton, P.M.G.; Rossiter, E.J.R.; Warren, C.B.M.; Goulis, G.; and Lord, P.A.: "Effect of Blue Light on Hyperbilirubinaemia," *Archives of Disease in Childhood*, 40:666-671, Dec., 1965.

Serum bilirubin levels were found to be reduced significantly in both a group of 11 infants with neonatal jaundice and a group of jaundiced Gunn rats when they were exposed to an artificial blue light. Subjects and methods are described. Untreated controls were present for both groups, and no infants with Rh hemolytic disease were included. In a further described experiment bilirubin in the presence of serum was found to uncouple oxidative phosphorylation of rat liver and brain mitochondria. Photodecomposition of the bilirubin destroyed "this uncoupling effect, and the products of the reaction showed no effect on oxidative phosphorylation"; thus no evidence that the products of the decomposition are toxic was revealed. Usefulness of the light treatment for hyperbilirubinemia is discussed.

147. Brown, Audrey K.: "Management of Neonatal Hyperbilirubinemia," for the Symposium on the Rh Factor, edited by Edward A. Banner, *Clinical Obstetrics and Gynecology*, 7:985-1010, Dec., 1964.

After reviewing the historical developments concerning kernicterus and defining the term "physiologic jaundice," the author thoroughly discusses the diagnosis and treatment of neonatal hyperbilirubinemia. Topics included are the conditions under which neonatal jaundice should be thoroughly investigated, the "hemolytic processes in the newborn infant" that should be considered in diagnosis, factors that are related to the "impaired, delayed or inhibited conjugation of bilirubin," "factors influencing the development of kernicterus," and the uses of the exchange transfusion and of albumin in treatment. Also considered are conditions under which conjugated bilirubin may be in the serum.

148. Brown, Isadore: "Factors Contributing to a Successful Patient Evaluation." Adapted from a paper presented at the Symposium on The Child with Central Nervous System Deficit, 1964. *Physical Therapy*, 45:448-452, May, 1965.

The various uses and sources of evaluative information are described. Other aspects of the subject discussed include the importance of a knowledge of normal development when assessing the abnormal, the team evaluation approach, and several factors to be included in the evaluation process. These factors are psychological tests, free observation, the developmental history, the reaction of the family to the child's disability, and environmental factors.

149. Brown, R.J.K., and Wallis, Patricia G.: "Hypoglycaemia in the Newborn Infant," *Lancet*, 1:1278-1282, June 15, 196[illegible]

Ten cases of neonatal symptomatic hypoglycemia, seen by the authors, are presented, four in detail. Two of the infants died, four lived but had brain damage, and four were normal. These later four were treated last and "received much more vigorous therapy" as described. A relationship between "severe intra-uterine malnutrition" and neonatal hypoglycemia was revealed.

150. Brown, Ross E.: "Doppler Ultrasound in Obstetrics," *Journal of the American Medical Association*, 218:1395-1399, Nov. 29, 1971.

The use of this technique for each of the following four purposes is determined: "(1) the detection of fetal life, (2) placental localization, (3) the diagnosis of multiple pregnancies, and (4) fetal heart monitoring." The findings in 521 patients are reviewed. The principles of the technique, the method of interpretation, the accuracy, and the limitations of the technique are considered.

151. Brown, Roy E.: "Organ Weight in Malnutrition with Special Reference to Brain Weight," *Developmental Medicine and Child Neurology*, 8:512-522, Oct., 1966.

Methods and findings are reported from a study of 1,094 necropsies performed on African children from birth to age 15. Body weight, spleen, liver, heart, and brain weights were analyzed. The children were divided into age groups and were classified as being malnourished or non-malnourished. In all groups the mean body weight was below "reference standards," but liver, heart, and spleen weights in the non-malnourished children were greater than in the children used as controls. These organ weights in the malnourished children approximated those of the controls. Special emphasis is given to findings regarding brain weight. The malnourished children had brain weights significantly lower than borh the non-malnourished and the control children. These findings and relevant results from other studies are discussed.

152. Bryant, G.M.; Gray, O.P.; Fraser, A.J.; and Ackerman, A.: "Fate of Surviving Low-Birth-Weight Infants with Coagulation Deficiencies on the First Day of Life," *British Medical Journal*, 4:707-709, Dec. 19, 1970.

Fifty-two infants having low thrombotest results were matched on all possible factors with 52 infants "who had a Thrombotest greater than 10%." The babies were thoroughly examined with testing methods described and neurologically assessed. The incidence of major and minor brain damage in the low Thrombotest group was 23.1% while in the group with higher results, it was 3.8%. Results of the separate analysis of the hypoglycemic infants are given. Possible causal factors are considered. "It is suggested that the causes of the brain damage in the low Thrombotest group are either non-fatal cerebral haemorrhage or intravascular fibrin deposition associated with disseminated intravascular coagulation."

153. Burnett, Carolyn N., and Johnson, Ernest W.: "Development of Gait in Childhood. Part I. Method," *Developmental Medicine and Child Neurology*, 13:196-206, April, 1971. (Series: For II see #154.)

Techniques used in studying gait development are described and assessed in normal children, and results and conclusions are presented. It is noted that such information is necessary for the diagnosis and analysis of gait abnormalities.

154. Burnett, Carolyn N., and Johnson, Ernest W.: "Development of Gait in Childhood: Part II," *Developmental Medicine and Child Neurology*, 13:207-215, April, 1971. (Series: For I see #153.)

The development of gait was studied in 28 normal children with the subjects, the method of study, and the results described. The stages of pre-independent walking and independent walking are discussed, and conclusions are presented. The results indicated "that the adult pattern of gait appears significantly earlier than is generally accepted."

155. Burry, H.C.: "Quantification of Spasticity; Preliminary Report on a New Method," *Annals of Physical Medicine*, 9:59-62, May, 1967.

Described is a method of assessing the degree of spasticity. It involves the application of "a standardized stimulus to initiate clonus at the ankle and recording resultant motor activity in the soleus electromyographically." Results with 10 cases, "the rationale of the method, its advantages over other methods, and its demerits are discussed."

156. Butcher, R.E.; Stutz, R.M.; and Berry, H.K.: "Behavioral Abnormalities in Rats with Neonatal Jaundice," *American Journal of Mental Deficiency*, 75:755-759, May, 1971.

Four experiments are described in which brain-damaged Gunn rats who had had postnatal jaundice were compared to "asymptomatic littermate controls" concerning "exploratory performance, activity pattern, and learning ability without the use of hunger or thirst motivation." Apparatus, procedures, and results are explained for each experiment. The brain damaged rats were hyperactive and had motor and learning impairments. The value of studying the behavior of Gunn rats because of their physiological condition is noted.

157. Butler, I.J.; Hopkins, I.J.; and Smith, M.A.: "Neurologic Handicaps after Low Oestriol Excretions in Pregnancy," *Australian Paediatric Journal*, 7:92-96, June, 1971.

Previous studies of low maternal estriol excretion during pregnancy are reviewed. A study was made of the children from "50 consecutive pregnancies with low maternal oestriol excretion during the last trimester." Follow-up data on 29 of these cases were available. Of these 29, there were 6 neonatal deaths. Of the 23 survivors followed and examined between the ages of 4 1/2 to 6 years, five "had definite neurological handicaps, and six had minor abnormalities of uncertain significance." The handicaps of the 11 children are described. Of the 29 cases followed, intra-uterine growth retardation, as defined, was detected in 16 cases, including 3 of the 6 neonatal deaths and all of the 5 survivors having definite neurological abnormalities. Findings are discussed.

158. Cabak, Vera, and Najdanvic, R.: "Effect of Undernutrition in Early Life on Physical and Mental Development," *Archives of Disease in Childhood*, 40:532-534, Oct., 1965.

Thirty-six Serbian children, who had been admitted to a hospital for malnutrition between the ages of 4 - 24 months were physically and mentally assessed between the ages of 7 - 14 years. Compared to similar healthy Serbian children, those who had been malnourished were normal in height and weight, but 18 scored below in I.Q. tests.

159. Caldeyro-Barcia, Roberto: "Fetal Malnutrition: The Role of Maternal Blood Flow," *Hospital Practice*, 5:33-43, June, 1970.

Studies by the author and his associates comparing the arterial supply to the placenta in late normal pregnancy with the vascular system in nonpregnant women are described. Several significant adjustments were found to occur in normal pregnancy which account for the ability of the placenta to continue to supply adequate nutrition to the fetus when the usual supply routes are obstructed. But in the presence of maternal hyper- and hypotensive disorders, these adjustments may fail to occur, and a malnourished fetus results. The circulatory patterns seen in such patients are described. A method of estimating "the unknown systolic femoral artery pressure from the known brachial artery pressure, thereby enabling the pressure distal to the compression of the aorta by the gravid uterus to be evaluated more accurately" is presented and recommended. Methods and results of measuring intrauterine activity during pregnancy are reported. Monitoring fetal heart rate during labor as a means of identifying fetal distress is considered with the methods used and findings included. Two types of fetal heart rate change which proved to be indicative of fetal distress "caused by diminished nutritional support from the mother" are described. Also presented are successful procedures involving the management of fetal distress. From the 30th week of pregnancy in cases of suspected distress, contractions have been artifically induced and subsequently ceased in a method designed to aid in determining whether a normal delivery is advisable or if interruption of pregnancy is indicated. In cases of severe fetal distress in labor, contractions were artifically stopped to allow the fetus to recover normal blood pH before performing a Cesarean section. The rationale is explained. Preliminary results of studying the effects of fetal deprivation on subsequent development are mentioned.

160. Callahan, Edward W., Jr.; Thaler, M. Michael; Karon, Myron; Bauer, Karinne; and, Schmid, Rudi: "Phototherapy of Severe Unconjugated Hyperbilirubinemia: Formation and Removal of Labled Bilirubin Derivatives," *Pediatrics*, 46:841-848, Dec., 1970.

Evidence is presented which supports the use of phototherapy in cases of neonatal hyperbilirubinemia. Detailed procedures are described of a study in which two infants (five and seven months of age) "with severe, congenital, unconjugated hyperbilirubinemia" were treated successfully with phototherapy. "Formation and disposition of the photodegradation products of bilirubin was studied" as described, and it was concluded "that light converts a portion of the bilirubin pool in man to more water-soluble derivatives that are efficiently excreted in the bile and urine."

161. Campbell, D.: "Motor Activity in a Group of Newborn Babies," *Biologia Neonatorum*, 13:257-270, 1968.

The head movements of 43 newborns were monitored by "movement sensing units" for daily continuous periods of at least 10 hours during the first few days of life. The apparatus and method used are given. Results concerning the reliability of the observations, the relationship between age and daily activity level, individual movement differences, the effect that labor and other maternally related factors had on subsequent activity, the correlation between feeding and activity rate, and patterns noticed in activity are presented, and implications are discussed.

162. Campbell, Marie A.; Ferguson, Isobel C.; Hutchinson, James H.; and Kerr, Margaret M.: "Diagnosis and Treatment of Hypoglycaemia in the Newborn," *Archives of Disease in Childhood*, 42:353-360, Aug., 1967.

Reported are findings when 1000 consecutive infants, admitted to a "Special-Care Nursery," were routinely tested with the "Detrostix" enzyme test strip for estimation of blood glucose. The following cases were revealed in the group: Nine of symptomatic and nine of asymptomatic hypoglycemia, and "four secondary to other severe diseases." It was therefore concluded that the test was a valuable screening device. Also reported is the analysis and treatment of 31 cases of neonatal hypoglycemia.

163. Campbell, Stuart: "An Improved Method of Fetal Cephalometry by Ultrasound," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 75:568-576, May, 1968.

Limitations of the method described in 1961 by Donald and Brown are listed, and the principles and technique of an improved method, "in which A scan and B scan are used in combination," are presented. Technical problems that have occurred are mentioned as are the results of using the method "within four days of delivery on a total of 35 fetuses in 32 successive cases of elective Caesarean section." The new method was seen to yield "a high degree of consistency and accuracy" and was found to be accurate "between the 20th and 30th weeks of pregnancy."

164. Campbell, Stuart: "The Prediction of Fetal Maturity by Ultrasonic Measurement of the Biparietal Diameter," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 76:603-609, July, 1969.

The method was used to assess fetal maturity in two series of patients. The 186 patients in the first series were of known gestational duration, and the fetal biparietal diameter was measured in the second half of pregnancy in order to establish the normal growth pattern. It was found that in 95% of the cases, duration of gestation could be predicted within nine days if the measurements were made between the 20th to 30th weeks of gestation. In the second series 170 women were studied in whom the fetal maturity was "in doubt." Favorable results of estimating the fetal maturity are presented with the importance of the timing of the measurement discussed.

165. Campbell, Stuart: "Ultrasonic Fetal Cephalometry during the Second Trimester of Pregnancy," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 77:1057-1063, Dec., 1970.

The accuracy in the second trimester of pregnancy of ultrasonic fetal cephalometry by the combined A and B scan method was assessed. "50-second trimester fetuses which were delivered by hysterotomy" were measured antenatally by ultrasonic cephalometry and postnatally by caliper. A high correlation was found and it was "concluded that the fetal biparietal diameter can be accurately measured from 13 weeks onwards."

166. Campbell, Stuart, and, Dewhurst, C.J.: "Diagnosis of the Small-for-Dates Fetus by Serial Ultrasonic Cephalometry," *Lancet*, 2:1002-1006, Nov. 6, 1971.

The fetal growth in 406 pregnancies, believed to be at risk from placental failure, was measured by serial ultrasonic cephalometry. The cases and methods used are described as are the results including relationships between ultrasonic fetal growth and fetal weight, Apgar score, perinatal mortality, and fetal abnormality. "When the growth-rate of the fetal biparietal diameter was below the 5th percentile, 82% of babies were below the 10th percentile of weight for gestation and 68% were below the 5th percentile. Retarded ultrasonic growth-rates were associated with a significant increase in the number of low Apgar scores, perinatal deaths, and gross fetal anomalies." Three cases are briefly presented and various aspects of the study are discussed. The method is concluded to be "an important aid in the diagnosis of the fetus at risk from chronic placental insufficiency."

167. Canby, John P.: "Charcoal Therapy for Neonatal Jaundice; A Preliminary Report on a Promising Method for Reducing the Need for Exchange Transfusions," *Clinical Pediatrics*, 4:178-180, Mar., 1965.

The administration of activated charcoal in solution to newborns when an "unusual degree of jaundice", as defined, was noted resulted in only 12 exchange transfusions in 9 infants being necessary during the experimental period in a population of 1,562 live births. During the control period in a population of 3,009 live births, 53 exchange transfusions in 27 infants were performed. It is felt that the charcoal absorbs the bilirubin. Other studies are reported.

168. Cannamore, Shirley; Hulls, Johanna; and Richards, Phyllis. *Snacks for Children*. Austin, Texas: University of Texas, Program for Staff Training of Exemplary Early Childhood Centers for Handicapped Children, [1971]. 16 pp. (Distinguished Staff Training Monograph Series Vol. II, No. 4.).

Described in this booklet are "factors to consider in planning snacks for young children," "guides for purchasing food for snacks," "suggestions for the selection of serving equipment and utensils," and suggestions for the serving of snacks. Also presented are menu samples, a "food selection chart," and a form for evaluating the food provided. A page of references of other materials related to this topic is included.

169. "Care of High Risk Neonate Should be Planned in Advance," *Pediatric News*, 5:12:31, Dec., 1971.

Dr. Abner H. Levkoff, Professor of Pediatrics at the University of South Carolina at Charleston describes the need he feels for adequate space, equipment, and personnel to be allotted in or near the operating room for the immediate postnatal treatment of the high risk neonate. Specifically considered is the infant delivered by cesarean section.

170. Carmichael, E. Arnold: "The Current Status of Hemispherectomy for Infantile Hemiplegia," *Clinical Proceedings of Children's Hospital of the District of Columbia*, 22:285-293, Nov., 1966.

Four questions are listed and answered in this paper: "1) What is hemispherectomy? 2) What are the clinical indications for this operation? 3) What improvements if any result from the operation? 4) What is the cost in terms of dysfunction which may result from the operation?" A "Discussion" follows the text.

171. Carr, Janet, and Stephen, Elspeth: "Paediatricians and Developmental Tests," *Developmental Medicine and Child Neurology*, 6:614-620, Dec., 1964.

Described is a survey in which a questionnaire was sent to 277 members of the British Paediatric Association to determine: (1) "How widely developmental tests are used on small children." (2) "Who uses them." (3) "Which tests are mainly used." (4) "What are they used for." (5) "How many of those tested are followed up." Results showed wide usage and frequent usage of selected test items. The principle uses were for assessing "backward" babies, handicapped babies, and those to be "offered for adoption." Few tests were followed up. Results are critically discussed and conclusions drawn. Seven frequently used developmental tests are briefly described in the appendix.

172. Carter, C.H.: "Librium in Spastic Disorders; Clinical Evaluation," *Archives of Pediatrics*, 79:22-27, Jan., 1962.

Previous work with drugs to reduce spasticity is reviewed, and a study is described in which chlordiazepoxide was administered as described to 94 spastic patients, ages 1 to 45 years, who were institutionalized with 80% under age 20. Personnel observed and evaluated the results. Improvement "was marked in 20 (20%), moderate in 71 (76%), and slight in 2; only one failed to respond at all." Three cases showing "marked" improvement are presented.

173. Carter, Charles H.: "The 'Hold-Back' Maneuver as an Obstetric Hazard," *Obstetrics and Gynecology*, 25:710-716, May, 1965.

The relationship between this "maneuver" and brain damage is examined by surveying the literature and by presenting the results of a retrospective study of "825 nonambulatory, severely physically handicapped and mentally retarded children." It was revealed that in 15 of these cases "the damage may have been related to the hold-back procedure at birth." These 15 cases are reviewed, and the limitations of such a study are discussed.

174. Carvalho, Oreste: "A Respiratory Function Test for Use in Spastic Cerebral Palsy," *Developmental Medicine and Child Neurology*, 10:98-100, Feb., 1968.

In 13 children under age three with spastic cerebral palsy, the "crying vital capacity" was found to be significantly lower than in a population of normal children of the same age. The "crying vital capacity" is defined as the "maximum volume of air expired in one respiration during crying," and is felt to be a useful measure in assessing spastic cerebral palsied children.

175. Casaer, Paul, and Akiyama, Yoshio: "The Estimation of the Postmenstrual Age: A Comprehensive Review," *Developmental Medicine and Child Neurology*, 12:697-729, Dec., 1970.

The importance of both the gestational age and the birthweight of the infant in evaluating risks to the fetus and newborn is noted. This article extensively surveys and evaluates by stated criteria the various pre- and postnatal methods that have been developed to estimate the postmenstrual age of the infant. Conclusions as to the most accurate parameters are drawn, and the reasons for the present wide range of accuracy are discussed. A lengthy bibliography follows the text.

176. Cassady, G., and Barnett, R.: "Acid-Base and Gas Tension Studies of the Amniotic Fluid in Human Gestation," *Biologia Neonatorum*, 14:251-263, 1969.

Reported is a study the results of which question the predictive value of amniotic pH and gas tension measurements in diagnosing fetal compromise. Direct measurements of amniotic fluid pH, PCO_2, and PO_2 were made in 107 pregnancies, most of which had various complicating conditions. Mean values are given. "These parameters were not affected by maternal age, race, nature of severity of pregnancy complications or fetal condition." However, results did indicate the possible usefulness of these parameters in estimating fetal maturity. Limitations of this study are discussed.

177. Cassady, G., and Barnett, R.: "Amniotic Fluid Electrolytes and Perinatal Outcome," *Biologia Neonatorum*, 13:155-174, 1968.

One hundred eighty-six amniotic fluid samples were obtained from 115 obstetric patients with complicated pregnancies. The electrolyte composition findings were correlated "with fetal condition at time of sampling and subsequent perinatal outcome." Methods are described. Results showed that the composition of amniotic fluid definitely changes during the course of pregnancy and that the type of change can be correlated with fetal condition and perinatal outcome. "Successful" pregnancies demonstrated "a gradual and progressive decline in amniotic fluid osmolality related to a diminishing amniotic fluid sodium concentration." But in those pregnancies resulting in fetal or neonatal mortality or morbidity, "a high or successively rising amniotic fluid solute content which again is related to an altered sodium concentration" was revealed.

178. Cassady, George: "Plasma Volume Studies in Low Birth Weight Infants," *Pediatrics*, 38:1020-1027, Dec., 1966.

Plasma and blood volume were determined shortly after birth and compared in 25 infants who were "intra-uterine growth retarded," in "40 truly premature infants," in "29 truly premature infants" with respiratory distress, and in 16 "normal, mature infants." Characteristics of the groups are presented as are the comparison results. "These studies reveal direct, objective and measurable differences between growth-retarded and true premature low birth weight infants and represent an attempt toward more accurate definition and understanding of intra-uterine growth retardation."

179. Cassidy, Alice K., and Venezia, Arlene A.: "The Social Worker's Place in Cerebral Palsy Management." Paper prepared for the Symposium on "Cerebral Dysfunction: A Treatment Program for Young Children," *Clinical Pediatrics*, 5:349-350, June, 1966.

The role of the social worker in the cerebral palsy team is described. Emphasis is placed on helping the parents adjust to and accept their young child's disabilities while preserving family relationships. Four stages of parental adjustment to a handicapped child, as first presented by Cohen, are listed.

180. Cavanagh, Denis, and Talisman, M.R.: *Prematurity and the Obstetrician*. Foreword by Arthur E. McElfresh. New York: Appleton-Century-Crofts, 1969. 542 pp.

The interdisciplinary approach to preventing the birth of underweight infants is stressed. In Section One the subject is introduced, terms are defined, incidence considered, and mortality and morbidity in the premature infant are discussed. Section Two is essentially concerned with the etiological factors associated with premature labor. In Section Three the effects of drug usage on the fetus, the newborn, and on prematurity outcome are discussed. The concern of Section Four is with premature labor management. Section Five, Six, and Seven deal respectively with the role of the obstetrician, the role of the pediatrician, and the role of the pathologist as related to the premature infant and its care. Conclusions and programs for improvement are outlined in Section Eight. Bibliographies follow each chapter.

181. Chambers, V.E.: "Guidance for Mothers of Cerebral-Palsied Children," *Physiotherapy*, 49:157-159, May 10, 1963.

Actual instructions to be given to the mother of a cerebral palsied baby by the physiotherapist soon after birth and at later interviews are presented. They include showing the mother how to "cuddle and love" her baby and how to later aid the child in following as much as possible a normal developmental sequence.

182. Chance, G.W., and Bower, B.D.: "Hypoglycaemia and Temporary Hyperglycaemia in Infants of Low Birth Weight for Maturity," *Archives of Disease in Childhood*, 41:279-285, June, 1966.

Twenty hypoglycemic infants were studied. Seven of these were asymptometic. The symptoms seen in the other 13 infants and the treatment and its results are described. The results were considered to be poor in that 4 of the babies died, and of those nine surviving, only one was considered normal. The others had "cerebral damage of variable severity." These results are compared with those of other similar studies, and possible reasons for the poor results from treatment in this study are considered. Preventive measures are discussed. It is recommended that "oral milk feeds" be administered to premature infants early.

183. Chantler, C.; Baum, J.D.; Norman, D.A.: "Dextrostix in the Diagnosis of Neonatal Hypoglycaemia," *Lancet*, 2:1395-1396, Dec. 30, 1967.

As a result of using Dextrostix strips to estimate blood-glucose levels in newborns, the method was concluded to be a valuable screening device in detecting hypoglycemia.

184. Charles, Allan G., and Friedman, Emanuel A., eds. *Rh Isoimmunization and Erythroblastosis Fetalis*. Written by the staff of the Michael Reese Hospital and Medical Center. Foreword by J. P. Greenhill. New York: Appleton-Century-Crofts, 1969. 235 pp.

The theoretical and practical aspects of this area of concern are reviewed in this volume. Chapters 1 and 2 introduce the subject and present a glossary of terms. Following articles describe the historical, pathological, serological, and endocrinological factors involved. Much emphasis is given to the assessment and care of the fetus and newborn infant. Amniocentesis, spectropholometric analysis of amniotic fluid, and intrauterine transfusion are discussed in detail. Methods of evaluating and managing the newborn are presented. Articles on the prevention of Rh isoimmunization and the outlook for the future conclude the book. Bibliographies follow each article.

185. Chase, H. Peter; Dabiere, Carol S.; Welch, N. Noreen; and, O'Brien, Donough: "Intra-Uterine Undernutrition and Brain Development," *Pediatrics*, 47:491-500, Mar., 1971.

Pregnant guinea pigs were experimentally malnourished from the 35th day of pregnancy until delivery while a control group was fed normally as described. Shortly after birth one animal from each litter was sacrificed while another from the litter of a similar birth weight was fed normally to 100 days of age. Brains were examined as described. Of the mothers on the restricted diet, over 50% "aborted or delivered nonviable young." Of the sacrificed newborn offspring of the malnourished mothers, "significant reductions in body weight and brain weight, cellularity, protein, cholesterol, cerebroside, and sulfatide contents" were detected. Of the offspring of the malnourished mothers fed normally to 100 days, "normal whole brain weight, cerebroside, and sulfatide contents, and normal cerebrum cellularity" were present at adulthood, but cerebellar weight and cellularity remained diminished compared to controls. "The results suggest that adequate postnatal nutrition will offset some, though not all of the brain biochemical changes resulting from fetal undernutrition." Results are interpreted, and analogies possible to humans are discussed.

186. Chefetz, Marshall D.: "Etiology of Cerebral Palsy; Role of Reproductive Insufficiency and the Multiplicity of Factors," *Obstetrics and Gynecology*, 25:635-647, May, 1965.

A study of the 'etiology of cerebral palsy' is described that involved 190 cases of cerebral palsy and 381 controls. Methods of case selection are presented. Hospital birth records of the child and of the mother were studied, and physicians of the cases were interviewed when possible. "Obstetric factors considered to be possibly etiologic" were evaluated in both groups and were placed in six categories: "1. Family history"; "2. Factors associated with reproductive insufficiency"; "3. Other prenatal factors"; "4. Factors operating during labor"; "5. Factors operating during delivery"; and "6. Asphyxia at birth". Results with regard to these six points and their subdivisions are reported in detail and analyzed. An 11 point "Summary" is given, included in which is the fact that "etiologic factors suggestive of reproductive insufficiency were present in 78.4% of the cerebral palsy cases." "These would seem to be one of the main causes, if not the prime cause of cerebral palsy."

187. Chevrie, J.J., and Aicardi, J.: "Bacterial Meningitis Among Newborn Infants," *Clinical Pediatrics*, 8:562-563, Oct., 1969.

Findings from 36 cases, treated by the authors, are reported with respect to the infants, symptoms, spinal fluid examinations, treatment, and prognosis. The importance of early diagnosis and treatment to a favorable outcome is discussed. 61.2% of these cases died. Of the survivors, 66% had "serious sequelae."

188. "Child's IQ Is Not Lowered by Acute Maternal Starvation," *Pediatric News*, 5:12:30, Dec., 1971.

A study by Dr. Zena A. Stein of the Columbia University School of Public Health and Administrative Medicine is described in which the results indicated that the mental ability of a child was not noticeably affected by starvation of the mother during pregnancy but rather "that the predominant influence on mental performance is the social environment, 'an influence that overwhelms all others.'" Subjects tested were 18-year-old men, some of whom were born during a severe famine that occurred in the western Netherlands in 1944 and 1945. "No greater prevalence of severe or mild retardation was found among those from the famine-exposed area than among those not affected by the famine." Two hypotheses concerning the results are suggested.

189. Chin, James; Ebbin, Allan J.; Wilson, Miriam G.; and Lennette, Edwin H.: "Avoidance of Rubella Immunization of Women During or Shortly Before Pregnancy," *Journal of the American Medical Association*, 215:632-634, Jan. 25, 1971.

The cases of 17 women who received rubella vaccine either "during or shortly before pregnancy" are reported, and the need for awareness of the potential risk to the fetus in such cases is discussed. "The Public Health Service Advisory Committee on Immunization Practices considers that there is no risk of fetal damage from the vaccine virus if conception occurs two or more months after vaccine administration. Some vaccine manufacturers have more cautiously recommended avoidance of pregnancy for an interval of at least three months following vaccine administration."

190. Chipman, Sidney; Lilienfeld, Abraham M.; Greenberg, Bernard G.; and Donnelly, James F. *Research Methodology and Needs in Perinatal Studies.* Proceedings of a Conference held at Chapel Hill, North Carolina, September, 1963. Springfield, Ill.: C. C. Thomas, 1966. 309 pp.

Included in this book are the papers presented and the discussions held at the above conference. Its primary purpose was to bring together investigators of the perinatal period of life in order to discuss their studies with emphasis placed on methodology and research needs. The papers are thus presented with this emphasis. Results of the studies are reported but not stressed. On one day of this conference, the participants were divided into four discussion groups. Each group was given an unsolved problem of a perinatal area and was asked to construct a study which might solve the problem. The reports of these four groups comprise Chapter 10 of the volume. A bibliography follows a summary of the conference.

191. Chisolm, J. Julian, Jr.: "Lead Poisoning," *Scientific American*, 224:15-23, Feb., 1971.

Two current concerns regarding lead poisoning are discussed: "(1) There is a need to know whether or not the current level of lead absorption in the general population presents some subtle risk to health; (2) there is an even more urgent need to control this hazard in the several subgroups within the general population that run the risk of clinical plumbism and its known consequences." The biochemical and physiological effects of lead intake in humans under normal conditions and under conditions of acute and chronic lead poisoning are considered. Current environmental sources of lead are described as are the common causative factors of lead poisoning in children in the United States - "a dilapidated old house, a toddler with pica and parents with inadequate resources (emotional, intellectual, informational and/or economic) to cope with the family's needs." Progressive symptoms, diagnosis, treatment, and preventive measures that have been taken in various cities are presented. The work of several investigators in the area is mentioned.

192. Chisolm, J. Julian, Jr., and Kaplan, Eugene: "Lead Poisoning in Childhood; Comprehensive Management and Prevention," *Journal of Pediatrics*, 73:942-950, Dec., 1968.

The causative factors in lead poisoning are discussed, including pica, a poor emotional and physical environment, etc., and the natural course and sequelae of lead poisoning are described. The importance of a program for the early identification and mass screening for the mother and child at risk is rated. A "comprehensive management" program is presented which involves "the comprehensive efforts of the local health department, physician, medical social worker, and psychologist." Prevention is also considered.

193. Christensen, Erna, and Melchior, Johannes C.: *Cerebral Palsy; A Clinical and Neuropathological Study*. Foreword by Roy Spector. London: Spastic Society in association with Heinemann Medical Books, 1967. 134 pp. (Clinics in Developmental Medicine, No. 25.).

After pertinent literature is reviewed a study of 69 young deceased cerebral palsy patients is described. In Chapter III, clinical data on the patients are presented, and in Chapter IV general neuropathological data and techniques are briefly described. Chapter V consists of a detailed report of the cases by clinical types with neuropathological findings emphasized. In Chapter VI the cases are grouped and discussed from a standpoint of area of the brain affected. Following chapters report cases of progressing lesions and epilepsy. Findings are summarized, pathological techniques and methods of staining are presented in the Appendix, and a bibliography is included.

194. Churchill, John A.: "A Study of Hemiplegic Cerebral Palsy," *Developmental Medicine and Child Neurology*, 10:453-459, Aug., 1968.

One hundred forty-four cases of hemiplegic cerebral palsy were studied to determine how hemiplegia with convulsive seizures (87 cases) differs from hemiplegia cerebral palsy without seizures (57 cases). Several differences were noted. A preponderance of right hemiplegia and 22 indications of postnatal "collapse" during the newborn period were seen in the non-epileptic cases but not in the epileptic group. There were 33 cases of "acquired" infantile hemiplegia with a cataclysmic onset in the epileptic group, but none in the non-epileptic group. An association was found between the hemiplegic side and occipital position of the head at birth in the epileptic cases only. The latent perinatal cerebral damage theory is discussed and it pertains to this evidence. Suggestions were made on the possible differing conditions under which the two types of hemiplegia may result.

195. Churchill, John A.: "Weight Loss in Premature Infants Developing Spastic Diplegia," *Obstetrics and Gynecology*, 22:601-605, Nov., 1963.

Weight changes following birth in 29 infants with spastic diplegia and having birth weights of less than 2000 gm. were compared to those of 29 control infants having similar birth weights. Data was analyzed, and it was revealed that although only 17.2% of the controls lost more than 200 gm. following birth, 72.4% of the spastic diplegic group lost more than 200 gm. Additional data are presented. "Weight loss in excess of 200 gm. in premature infants may be an early sign of prognostic value in regard to spastic diplegia."

196. Churchill, John A.; Carleton, Jack H.; and Berendes, Heinz W.: "Hematocrit of Newborns of Short Gestation," *Developmental Medicine and Child Neurology*, 12: 153-157, Apr., 1970.

Reported is a study that lends support to the theory that spastic diplegic cerebral palsy may be a result of intracerebral hemorrhage. Seven hundred and one infants who weighed less than 2 Kg at birth and who had had hematocrit tests shortly after birth were neurologically examined at one year of age. Of the 40 infants diagnosed as having spastic diplegia, all had a gestational age of less than 36 weeks and had a mean hematocrit value significantly below the nonspastic infants in the same gestational age group.

197. Churchill, John A., and Confelt, Robert H.: "Etiologic Factors in Athetotic Cerebral Palsy," *Archives of Neurology*, 9:400-406, Oct., 1963.

Detailed historical and neurological examination data was accumulated on 46 patients with athetotic cerebral palsy. In order to avoid inaccuracies, presented results are divided into those from the 27 cases in which histories were obtained from hospital records and those 19 in which the histories were obtained only from mothers. Findings revealed two distinct types of the condition. In the first type (A) neonatal jaundice had been present and the clinical characteristics were "deafness and impairment of upward gaze." The second type (B) was associated with asphyxia neonatorum and the clinical signs were present of Babinski signs and hypertonicity. Further distinctions are described. A few patients had characteristics from both types, and "a few were atypical."

198. Claireaux, Albert E.: "Neonatal Hyperbilirubinaemia," *British Medical Journal*, 1:1528-1534, May 21, 1960.

The relationships among hyperbilirubinemia, kernicterus, and brain damage are described as are the derivation and normal breakdown process of bilirubin in the body. Neonatal jaundice is then classified as being "non-obstructive" and "obstructive." Forms of both types are explained and related to the occurrence of neurological damage. Kernicterus is considered including the historic development of the term, its association with hemolytic disease and prematurity, its incidence in infants of normal birth weight, and the characteristic appearance of the brain in its presence. Many pertinent early studies are mentioned.

199. Clarke, C.A.: "Immunology of Pregnancy: Significance of Blood Group Incompatibility between Mother and Foetus," *Proceedings of the Royal Society of Medicine*, 61:1213-1217, Nov., 1968.

Among the topics discussed is the prevention of Rh hemolytic disease by the administration after delivery of anti-D gamma globulin. Remaining problems concerning prevention are described.

200. Clarke, C.A.: "Prevention of Rh Haemolytic Disease," in *Studies in Infancy*, based on a study group held at Oxford, September, 1966; edited by Ronald MacKeith and Martin Bax. London: Spastics International Medical Publications in association with Heinemann Medical Books, 1958. pp. 65-66. (Clinics in Developmental Medicine, No. 27.).

This paper is a summary of the studies done by Clarke. In the study reported, anti-D gamma globulin was given within 36 hours of delivery to alternate Rh negative primiparae who had given birth to Rh positive ABO compatible babies. The selected women were considered to be of a high risk nature because an appreciable number of fetal cells were found in the maternal circulation after delivery. Tables show that in 40 subsequent second pregnancies only the untreated women produced immune antibodies. Thus, it was felt that the anti-D gamma globulin had been protective.

201. Clarke, C.A.: "Prevention of Rh Haemolytic Disease," *Vox Sanguinis*, 11:641-655, Nov.-Dec., 1966.

The work of the author and others on "the interaction between the Rh and the ABO systems" and on the role of transplacental hemorrhage in sensitization is reviewed as is the experimental and clinical work pertaining to the prevention of Rh hemolytic disease by the use of anti-D serum.

202. Clarke, C.A.; Donohoe, W.T.A.; McConnell, R.B.; Woodrow, J.C.; Finn, R.; Krevans, J.R.; Kulke, W.; Lehane, D.; and Sheppard, P.M.: "Further Experimental Studies on the Prevention of Rh Haemolytic Disease, *British Medical Journal*, 1:979-984, Apr. 13, 1963.

Included are the methods used and results obtained in three experiments in which 96 Rh negative men were given injections of Rh positive blood. There were two principle findings: (1) "10-20 ml. of plasma containing mainly complete anti-D failed to clear rapidly Rh positive erythrocytes from the blood of Rh negative male subjects and enhanced the immunization produced by these cells"; (2) "35-50 ml. of plasma containing chiefly incomplete anti-D usually produced rapid clearing of Rh positive red cells and considerably suppressed immunization of these cells in Rh negative male subjects." Preliminary tests, in which intramuscular injections of anti-D gamma globulin were given, are mentioned.

203. Clifford, Stewart H.: "High-Risk Pregnancy. I. Prevention of Prematurity the Sine Qua Non for Reduction of Mental Retardation and Other Neurologic Disorders," *New England Journal of Medicine*, 271:243-249, July 30, 1964. (Series: For II see #503.)

An analysis was made of the birth records at the Boston Lying-in Hospital. The results are presented and conclusions drawn. It is hypothesized that prevention of prematurity will lower perinatal mortality and morbidity. The prime factor in the prevention of prematurity is the identification and care for high-risk maternity cases early in pregnancy. Age, parity, and socio-economic status are seen as identifying factors in high-risk cases.

204. "Clinical Developments in Neonatology," *Journal of the American Medical Association*, 200:7:33-34+, May 15, 1967.

Four recently developed clinical procedures to reduce neonatal mortality and morbidity are described. They are: phototherapy to prevent hyperbilirubinemia, immediate administration of epinephrine to infants of diabetic mothers to prevent hypoglycemia, an 'apnea alarm' system for the nursery to prevent prolonged hypoxia, and the obtaining of serial urine samples from prematures "to assess frequency and clinical significance of asymptomatic bacteriuria." Results from usage of these techniques are reported.

205. Cohen, Herbert J.; Birch, Herbert G.; and Taft, Lawrence T.: "Some Considerations for Evaluating the Doman-Delacato 'Patterning' Method," *Pediatrics*, 45:302-314, Feb., 1970.

An objective evaluation of this method of treatment is presented. The theory and techniques of the 'patterning' method, "advanced by Doman-Delacato and their colleagues for the treatment of children with neuromuscular disorders, behavioral abnormalities, learning disabilities, and apparent mental subnormality," and the two types of programs used in the method are described. The method is assessed on the "empirical" and on the "theoretical" levels. With regard to the empirical assessment, several questions to be answered concerning the method are listed, and the published data relating to treatment, results, etc. are examined. With regard to the theoretical assessment, "the rationale for 'patterning'" is analyzed and discussed with numerous studies reviewed. "It has been concluded that the data thus far advanced are insufficient to justify affirmative conclusions about the system of treatment." "We have also noted evidence that is available that justifies questioning the theoretical premises of the method."

206. Cohen, Herbert J., and Diner, Harold: "The Significance of Developmental Dental Enamel Defects in Neurological Diagnosis," *Pediatrics*, 46:737-747, Nov., 1970.

Previous work concerning dental enamel defects and their relationship to perinatal insult is reviewed. Three groups of children were studied including 215 children referred "for suspected neurological intellectual, behavioral or language disturbances," "139 nonclinic children from low income families," and 150 nonclinic children "from middle to high income families." Methods used and dental, neurological, and historical examination procedures are described. Results are reported concerning the "frequency of dental defects," the "relationship of dental defects to IQ and neurological status," and the "relationship between enamel defects and historical data." Conclusions are stated including the fact that "enamel defects were most common in neurologically impaired clinic children" and "were significantly less common in neurologically normal clinic children and in low income, nonclinic, day care children from the same general socioeconomic groups." "Chronologically distributed enamel defects are a significant aid in neurological diagnoses since they occur most commonly in brain damaged children and, in addition, may indicate the time of insult to the fetus or infant even when the history is reportedly negative." Several dental photographs illustrate defects.

207. "The Collaborative Perinatal Study; The First Five Years," *Clinical Pediatrics*, 3:553-554, Sept., 1964.

The organization, the design, the initiation and the ancillary benefits of this project are described.

208. Comley, Ann, and Wood, Ben: "Albumin Administration in Exchange Transfusion for Hyperbilirubinaemia," *Archives of Disease in Childhood*, 43:151-154, Apr., 1968.

Fifty-three infants, receiving exchange transfusions for hyperbilirubinemia, were divided into three treatment groups. The groups of infants who received approximately 20 grams of human albumin during the exchange process showed a significant increase in the amount of bilirubin removed over the control group who received regular transfusions and a third group who received a "priming dose" of albumin a few hours before the transfusion. The effects of this "priming," possible explanations for the results, and the implications of brain damage are considered.

209. "Complications of Prolonged Pregnancies," *Journal of the American Medical Association*, 195:4:39-40, Jan. 24, 1966.

Reported is a study of 20,000 pregnancies lasting 43 weeks or longer. Results indicate the offspring of this group to have a higher mortality rate than "controls for at least the first 2 years of life," a higher incidence of congenital anomalies, and poorer general health during the first three years of life. Certain pregnancy complications were more frequent, and a tendency for prolonged pregnancies to recur in those women was noted.

210. Conference on Drugs and Poisons as Etiological Agents in Mental Retardation, Palo Alto, California, 1967. *Drugs and Poisons in Relation to the Developing Nervous System; Proceedings*. Guy M. McKhann and Sumner J. Yaffe, co-chairmen; Gerhard S. Sharon, technical editor. Bethesda, Maryland: National Institute of Neurological Diseases and Blindness, 1968. 276 pp. (Public Health Service Publication No. 1791.)

Contained within are the individual presentations of the participants and the discussions which took place at the conference named above. "The format of this conference reflects a desire to bring about an exchange of information relating to three areas: Parameters of the developing nervous system; the study of specific toxic agents as models; and the use of epidemiological approaches to determine the incidence and variation of noxious effects of drugs and poisons on the brain during prenatal and postnatal development." Papers were presented in each of these three areas.

211. Connolly, Kevin: "The Applications of Operant Conditioning to the Measurement and Development of Motor Skill in Children," *Developmental Medicine and Child Neurology*, 10:697-705, Dec., 1968.

After explaining the principles of operant conditioning, this author reviews several studies in which the techniques of operant conditioning have been applied to motor behavior control. An apparatus has been developed which measures the number of responses, reaction time, etc., of a child when he throws at a target which becomes progressively smaller. It is hoped that this device will aid in determining whether operant conditioning can be used with handicapped children to control motor response.

212. Connon, Aileen: "Improved Accuracy of Prediction of Severity of Hemolytic Disease of the Newborn," *Obstetrics and Gynecology*, 33:72-78, Jan., 1969.

"Analysis of amniotic fluid pigments by a mathematical formula (Ovenstone factor) was shown to be prognostically useful for 106 Rh-affected newborns." This formula was seen to clearly distinguish "bilirubin-like pigment from any other pigment which may be present in liquor and is completely unaffected by blood pigments."

213. Conrad, Jerome A., and Frost, Harold M.: "Evaluation of Subcutaneous Heel-Cord Lengthening," *Clinical Orthopaedics and Related Research*, 64:121-127, May-June, 1969.

The results of 112 subcutaneous heel-cord lengthenings were compared to results of 87 open heel-cord lengthenings. All procedures were performed at the same hospital. The age range of the patients was from 6 months to 62 years. The patients, the indications for treatment, the subcutaneous technic, postoperative care and detailed results, including complications, recurrence of equinus, etc., are reported. The advantages and criticisms of closed tenoplasty are discussed. "The results show that the closed procedure is quicker, easier, better tolerated with less anesthetic and surgical morbidity and with fewer complications than is the open method. It is at least as effective as, and no more likely to be followed by a recurrence than, the open method in correcting equinus."

214. Cooper, Louis Z.; Ziring, Philip R.; Ockerse, Albert B.; Fedum, Barbara A.; Kiely, Brian; and Krugman, Saul: "Rubella; Clinical Manifestations and Management," *American Journal of Diseases of Children*, 118:18-29, July, 1969.

The subject of the clinical manifestations of congenital rubella is briefly traced historically. The various abnormalities found in 376 children in the Rubella Birth Defect Evaluation Project (RBDEP) are described. Included are neonatal symptoms, cardiovascular disease, deafness, ocular defects, developmental and neurological abnormalities, etc. Almost half of the children studied had some type of psychomotor defect. Temporal relationships which have been found between rubella and the various defects are considered along with prognosis and various factors dealing with the management of congenital rubella.

215. Corker, C.S., and Naftolin, F.: "A Rapid Method for the Measurement of Oestriol in Pregnancy Plasma by Competitive Protein Binding Analysis," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 78:330-334, April, 1971.

The procedures, accuracy, precision, sensitivity, and specificity of this method are presented. "The method has been used to assay oestriol in amniotic fluid and should be equally applicable to measurements of urinary oestriol excretion."

216. Cornblath, Marvin; Joassin, Guy; Weisskopf, Bernard; and Swiatek, Kenneth R.: "Hypoglycemia in the Newborn," *Pediatric Clinics of North America*, 13:905-920, Aug., 1966.

The condition is described "methodology necessary for reliable low blood glucose levels" is reviewed, and the aspects of clinical manifestations, differential diagnosis as to the types and causes of hypoglycemia, treatment, and prognosis are individually considered. Two cases are presented in the "Appendix."

217. Cornblath, Marvin, and Reisner, Salomon H.: "Blood Glucose in the Neonate and Its Clinical Significance," *New England Journal of Medicine*, 273:378-381, Aug. 12, 1965.

Proper methods of handling and analyzing blood samples to determine blood glucose levels in the neonate are described, and "the range of glucose levels in blood are defined for the full-sized and the low birth weight infant in the first month of life." The "manifestations, pathogenesis, and treatment" of neonatal hypoglycemia and hyperglycemia are presented.

218. Cornblath, Marvin; Wybregt, Susan H.; Baens, Gloria S.; and Klein, Reuben I.: "Studies of Carbohydrate Metabolism in the Newborn Infant. VIII. Symptomatic Neonatal Hypoglycemia." *Pediatrics*, 33:388-402, Mar., 1964.

Twenty-four neonates having symptomatic neonatal hypoglycemia were studied in detail to determine the clinical characteristics, the pathogenesis, and the therapy of the condition. Much pertinent data on the cases are reported, including maternal characteristics, labor and delivery factors, characteristics of the infants, laboratory determinations made, method of therapy, and follow-up results. Two of the infants "died with congenital anomalies involving the central nervous system" and three "were definitely retarded in motor and intellectual achievement at two years of age." A "Summary" lists principle findings, and two cases are described in detail.

219. Corson, Stephen, and Bolognese, Ronald J.: "Amniotic Fluid pH as an Indicator of Fetal Asphyxia," *Obstetrics and Gynecology*, 31:397-402, Mar., 1968.

In an effort "to develop a safe, accurate technic for the continuous monitoring of amniotic fluid and further to evaluate the pH of amniotic fluid as an indicator of disturbed fetal acid-base balance," single and serial samples of amniotic fluid were obtained from 41 women in late pregnancy or during labor. The samples "were aerobically measured immediately at bedside" as described. Data on the women, the majority of whom had pregnancy complications, are given. The method was found to be safe, simple, and accurate, but "no correlation between amniotic fluid pH and fetal asphyxia could be demonstrated." Possible explanations are discussed.

220. Cotton, Ester: "Integration of Treatment and Education in Cerebral Palsy," *Physiotherapy*, 56:143-147, Apr., 1970.

The "existing structure of treatment and education" for cerebral palsied children is described, with advantages and disadvantages listed, and contrasted with the "conductive education" method of Professor Andras Petö, founder of the Institute for Conductive Education of the Motor Disabled in Budapest.

221. Council for Exceptional Children. *Exceptional Children Conference Papers: Curriculum, Methods, and Materials in Early Childhood Programs*. Papers presented at the Special Conference on Early Childhood Education held at New Orleans, Dec. 10-13, 1969. Arlington, Virginia: The Council, 1969. 175 pp.

Topics included in the 13 papers presented at this Conference in this area are preschool education for handicapped children, training of personnel, parent participation, procedures for investigating cognitive development in the young child, The British Infant School Program, visual impairment in the young child, and new speech therapy techniques.

222. Council for Exceptional Children. *Exceptional Children Conference Papers: Early Childhood Education - An Overview.* Papers presented at the Special Conference on Early Childhood Education held at New Orleans, Dec. 10-13, 1969. Arlington, Virginia: The Council, 1969. 64 pp.

Subjects dealt with in the eight papers presented include early education and early identification of the handicapped child.

223. Council for Exceptional Children. *Exceptional Children Conference Papers: Parent Participation in Early Childhood Education.* Papers presented at the Special Conference on Early Childhood Education held at New Orleans, Dec. 10-13, 1969. Arlington, Virginia: The Council, 1969. 121 pp.

Eight papers from this Conference on the subject of parent participation in the education of their young physically handicapped or disadvantaged children are included.

224. Courey, Norman G.; Stull, Robert L.; Fisher, Ben; Stull, Carol G.; and Lundstrom, Paula: "Urinary Estriol Excretion in High-Risk Pregnancy," *Obstetrics and Gynecology,* 34:523-529, Oct., 1969.

Two groups of high-risk pregnant women, in whom both single and serial metabolic urinary estriol determinations had been made during their last trimester, were compared. "Group A consisted of 41 women who had relatively uncomplicated pregnancies and gave birth to apparently normal babies, while Group B contained 17 women whose babies died." When the accumulated data had been divided into three successive time periods, it was revealed that "the mean estriol levels and estriol concentrations were uniformly lower in the perinatal death group (B) in all periods, while urine volumes were essentially comparable." Thus "the concept of decreased urinary estriol output as an indicator of fetoplacental dysfunction has been confirmed." A new method of "considering estriol concentration" is explained that "may be of value where total estriol output is in a difficult-to-interpret range."

225. Cox, Margaret, and Dunn, Henry G.: "Idiopathic Hypoglycaemia and Children of Low Birth-Weight," *Developmental Medicine and Child Neurology,* 9:430-447, Aug., 1967.

After a short review of previous work in the area, the characteristic of idiopathic hypoglycemia in the newborn are listed. Tables are constructed to show the case histories, symptoms, and follow-up development of low birth weight infants with neonatal idiopathic hypoglycemia seen at Vancouver General Hospital. The findings of these cases are further analyzed. Early diagnosis and treatment of the condition are seen as vital. Problems of diagnosis, high risk factors, and reports on the frequency are discussed.

226. Craig, W.S.: "Convulsive Movements Occurring in the First Ten Days of Life," *Archives of Disease in Childhood,* 35:336-344, Aug., 1960.

Considered in this study were 374 newborns in whom convulsions occurred within 10 days of birth. Pathological findings are presented for the 158 fatal cases, and the 216 surviving cases are discussed with respect to those cases with a "proven diagnosis" and those in which the diagnosis was "presumptive." The characteristics of the convulsions are described in general and in relation to the presence of infections, developmental anomalies, hemorrhage, intracranial disturbances, and hypothermia. A follow-up study of surviving children at approximately three years of age revealed "a higher incidence of sequelae" in the children who had had neonatal convulsions than in a control group of children "with no such history." Numerous other studies are mentioned.

227. Creery, R.D.G.: "Hypoglycaemia in the Newborn: Diagnosis, Treatment and Prognosis," *Developmental Medicine and Child Neurology*, 8:746-754, Dec., 1966.

Twenty-two cases of neonatal hypoglycemia are described. Clinical features, treatment and outcome are presented. Oral dextrose and intramuscular hydrocortisone were given in treatment. Five of the infants died; of the 17 survivors, seven showed evidence of brain damage at follow-up. Other related studies and possible preventive measures are discussed.

228. Crickmay, Marie C. *Speech Therapy and the Bobath Approach to Cerebral Palsy.* Springfield, Illinois: C. C. Thomas, 1966. 177 pp.

In the first three chapters of this book the condition of cerebral palsy is generally considered, the principles of the Bobath treatment method are outlined, and the roles of the physical, occupational and speech therapists are elaborated. Detailed in Chapter III are ways these therapists can help the cerebral palsied child before formal therapy is begun. In Chapter IV the "Development of Motor Behaviour and Speech in the Normal and Cerebral Palsied Child" are traced from birth until age three. Chapter V is concerned with the assessment of speech. In Chapter VI the principles of the Bobath method are discussed as they relate to the speech therapist. Specific speech problems of the cerebral palsied are considered in Chapters VII and VIII, and the psychological aspects are discussed in Chapter IX. Seven pages of references follow.

229. Cruickshank, W.M., ed. *Cerebral Palsy; Its Individual and Community Problems.* 2nd ed. Syracuse: Syracuse University Press, 1966. 704 pp.

A comprehensive work with thorough bibliographies after each chapter, this text would be of interest to anyone working with cerebral palsied children. Medical, psychological, therapeutic, social work, and rehabilitative views are brought together to emphasize the need for an interprofessional understanding of the common problem. Fairly current data on many studies, methods, and results of treatment in the various fields are presented. Etiological factors are discussed in Chapters 1 and 2. The various disciplines involved in the early care of cerebral palsied children are presented in separate chapters dealing with dysfunctions of intelligence, speech, hearing, and sight. Parental adjustment to the handicapped child is also discussed.

230. Culley, Phyllis; Powell, Jean; Waterhouse, John; and Wood, Ben: "Sequelae of Neonatal Jaundice," *British Medical Journal*, 3:383-386, Aug. 15, 1970.

Three groups of children (371 total), who as infants had had nonhemolytic jaundice, hemolytic jaundice, or no jaundice (controls) respectively, were tested neurologically, audiologically, and psychologically at six years of age. Low birth weight rather than jaundice was found to be associated with the cases of neurological handicap. The majority of these cases were in the nonhemolytic group. Only one hemolytic jaundiced newborn was abnormal at age six, having severe athetoid cerebral palsy with deafness. No relationship was revealed between neonatal jaundice and I.Q. Discussion is conducted.

231. Cullinan, T.R.: "'At Risk' in the U.S.S.R.," *Lancet*, 2:1075-1076, Nov. 21, 1970.

Described are observations made by the author in Moscow and Leningrad concerning the Russian concepts of at risk babies. Three conclusions are listed.

232. Cunningham, M.D.; Mace, J.W.; and Peters, E.R.: "Clinical Experience with Phenobarbitone in Icterus Neonatorum," *Lancet*, 1:550-551, Mar. 15, 1969.

Phenobarbitone was administered, as described, for a period of 72 hours to 52 full-term neonates weighing 2,500 g. or more and who had clinical jaundice. A control group consisted of 12 similar but untreated infants. No significant difference between the two groups with regard to the reduction of serum bilirubin values was detected. It is concluded that "once unconjugated hyperbilirubinemia exists in the neonate, it is unresponsive to phenobarbitone."

233. Daley, William T., ed. *Speech and Language Therapy with the Cerebral Palsied Child.* Proceedings of a Workshop on this topic conducted at The Catholic University of America, June 11-22, 1964. Washington, D.C.: The Catholic University of America Press, 1965. 202 pp.

Contained in this book are the papers presented at the above workshop. Although several of the presentations mention the young cerebral palsy child, there are two papers that are especially pertinent to this bibliography. These are "Differential Diagnosis in Speech and Hearing with the Cerebral Palsied Child" by Frank B. Wilson (pages 51-66), and "Research in Speech Problems Associated with Cerebral Palsy and Implications for the Young Cerebral Palsied Child" by James C. Hardy (pages 67-90).

234. Daniel, S.S.; Dawes, G.S.; James, L.S.; Ross, B.B.; and Windle, W.F.: "Hypothermia and the Resuscitation of Asphyxiated Fetal Rhesus Monkeys," *Journal of Pediatrics*, 68:45-53, Jan., 1966.

Evidence is presented which questions the value of hypothermia as a treatment method in the resuscitation of the asphyxiated newborn.

235. Daniel, Salha S.; Adamsons, Karlis, Jr.; and Jones, L. Stanley: "Lactate and Pyruvate as an Index of Prenatal Oxygen Deprivation," *Pediatrics*, 37:942-953, June, 1966.

Lactate, pyruvate, pH, and base deficit values were determined in the cord blood, the maternal blood, the amniotic fluid, the fetal urine, and the neonatal blood of 132 infants and 49 mothers. Not all sets of samples were complete. The infants were "divided into four groups according to the mode of delivery and the clinical condition of the infant as assessed by the Apgar score." Forty of the infants were considered to be "mildly depressed" (Group III) and 20 were "severely depressed" (Group IV). Detected relationships are presented and discussed, including the fact that, "Infants born following prolonged or complicated labors during which oxygen supply to the fetus is likely to be impaired are more acidotic and have significantly higher lactate levels."

236. Dargassies, S. Saint-Anne: "Value of Assessing Clinical Neuropathology at Birth," *Proceedings of the Royal Society of Medicine*, 64:468-471, May, 1971.

The assessment of maturity at birth, the detection of neuropathological signs at birth, the following of the evaluation of such signs, and prognosis are discussed. Brief case reports are presented to illustrate.

237. Darley, Frederic L., ed. *Symposium on Cerebral Palsy; a Memorial to Lydia Newton.* Sponsored by the National Society for Crippled Children and Adults at the 37th Annual Convention of the American Speech and Hearing Association, held in Chicago, Nov. 7, 1961. Washington, D.C.: American Speech and Hearing Association, 1962. 54 pp.

The contributors to this Symposium and the titles of their papers are: Hans Zellweger, "Basic Neuromotor Problems Associated with Cerebral Palsy";

Cyril B. Courville, "Structural Changes in the Brain in Cerebral Palsied States"; Meyer A. Perlstein, "Principles of Therapy"; Eugene T. McDonald, "Bases of Speech and Language Problems in Cerebral Palsy"; and Raymond R. Rembolt, "The 'Team' in Cerebral Palsy."

238. Darwin, Charles: "A Biographical Sketch on an Infant," *Developmental Medicine and Child Neurology Supplement*, No. 24, 1971. 8 pp. This article originally appeared in *Mind*, July, 1877, pp. 285-294.

In this paper Darwin describes the development of one of his own children from birth through approximately the second year of life. Developmental features separately considered include vision, movement, anger, fear, pleasure, affection, reason, "moral sense," shyness, and communication.

239. D'asaro, Michael J., and John, Vera: "A Rating Scale for Evaluation of Receptive, Expressive, and Phonetic Language Development in the Young Child," *Cerebral Palsy Review*, 22:3-4, 17-19, Sept.-Oct., 1961.

Reported are the efforts made to refine the receptive and expressive portions of a language development scale (R-E-P Language Scale) designed to assess "the receptive component," "the expressive component," and "phonetic skills" in the young child. Standardization procedures involving 108 children, ages 6 weeks to 68 months, and the subsequent results are described. Also presented are the results when the scale was used as part of a diagnostic program involving 34 language handicapped, cerebral palsied or developmentally delayed children. The scale is presented on the latter group of pages cited.

240. Davies, Pamela A.: "Later Progress of 100 Infants Weighing 1000 to 2000 g at Birth Fed Immediately with Breast Milk," supplement on developmental progress by Hazel Russell, *Developmental Medicine and Child Neurology*, 10:725-735, Dec., 1968.

One hundred infants, weighing 1000 - 2000 grams at birth and fed undiluted breast milk from birth, were examined at age two. Neurological handicaps, physical growth, congenital abnormalities, sensory defects, and developmental test results of the group are discussed. The theory that with decreasing birth weight, there is an increasing likelihood of handicap was not supported by the assessment of these children at age two.

241. Davies, Pamela A., and Davies, Jeffrey P.: "Very Low Birth-Weight and Subsequent Head Growth," *Lancet*, 2:1216-1219, Dec., 12, 1970.

A group of infants, born between 1961 and 1968 and weighing 1,500 g. or less at birth were studied and followed with respect to head growth. These findings were correlated with food intake and body temperature during the neonatal period. The group was divided into two subgroups by date of birth, and the cases were designated as either "appropriate for dates" or "small-for-dates." "It is suggested that the results, both in the appropriately grown and small-for-dates infants, support the hypothesis that relatively minor undernutrition during a time of very rapid brain growth could result in a deficit in the ultimate size of the brain." The importance of early feeding after birth and the maintenance of sufficiently warm temperature in the neonatal period with regard to later neurological and physical status is discussed.

242. d'Avignon, Marcel: "Acquired Cerebral Palsy: History, Symptoms, Treatment," *Developmental Medicine and Child Neurology*, 5:626-628, Dec., 1963.

Thirty-five cases of acquired cerebral palsy in children are analyzed with respect to etiological factors, motor and mental symptoms, epilepsy, "total handicap," and treatment.

243. d'Avignon, Marcel, and Olow, Ingemar: "Indications for Residential Treatment in the Early Years of Life," *Developmental Medicine and Child Neurology*, 154-158, Apr., 1963.

Three possible reasons for early residential care and the basic requirements of such are given. The program at The Gothenburg Institute in Sweden, a residential care center for 30 children, ages one to seven, is described in detail. The child usually stays at the center for periods of two months once or twice annually. When the care is "as home-like as possible," when close contact is kept with parents, and when reactions are closely observed, it is believed that the children "suffer very little harm from residential care." Questionnaires used are reproduced.

244. Davis, G. Gene: "Causes of Cerebral Hypoxia in the Full-Term Infant," *Arizona Medicine*, 27:12-16, Aug., 1970.

Statistics regarding infant mortality and morbidity are reported and discussed. An investigation is described in which the records were studied of 246 full-term infants who had had severe cerebral hypoxia, cerebral depression, and/or convulsions, as defined. "From this study it appears that efforts to reduce the incidence of cerebral disturbances in the full-term infant should include concentration in the following areas: (1) Earlier recognition of compromised fetal status and more frequent consultation in prolonged labor. (2) Attendance of an experienced obstetrician at all complicated deliveries. (3) More liberal use of Cesarean section in women with borderline disproportion. (4) The monthly interdepartmental conference on perinatal deaths should become a perinatal mortality-morbidity conference."

245. Davis, Hallowell, and Niemoeller, Arthur F.: "A System for Clinical Evoked Response Audiometry," *Journal of Speech and Hearing Disorders*, 33:33-37, Feb., 1968.

The components for such a system are pictured, and specifications are described. The system "offers a means of testing objectively the hearing of children who because of age, poor motivation, or lack of understanding cannot or will not cooperate in conventional voluntary audiometry."

246. Dawes, G.S.; Hibbard, E.; and Windle, W.F.: "The Effect of Alkali and Glucose Infusion on Permanent Brain Damage in Rhesus Monkeys Asphyxiated at Birth," *Journal of Pediatrics*, 65:801-806, Dec., 1964.

The findings upon microscopically studying the brains of rhesus monkeys, who had been asphyxiated at birth and then resuscitated, revealed that when alkali and glucose were administered during asphyxia, "the incidence and extent of permanent brain damage" were reduced.

247. Dawes, G.S.; Jacobson, H.N.; Mott, Joan C.; Shelley, Heather J.; and Stafford, Anne: "The Treatment of Asphyxiated, Mature Foetal Lambs and Rhesus Monkeys with Intravenous Glucose and Sodium Carbonate," *Journal of Physiology*, 169:167-184, Nov., 1963.

The methods and results of a study are described in which mature fetal lambs and rhesus monkeys, delivered by Cesarean section under local anesthesia, were "asphyxiated for a standard time and then resuscitated." Some animals received infusions of glucose and sodium carbonate during asphyxia. Responses were recorded and are described. It was found that in mature fetuses the treated animals gasped longer and "recovered more rapidly and more completely" than did the untreated animals. "Both during asphyxia and afterwards, the effects of the infusion were greater in the monkeys than in the lambs."

248. Dawes, G.S.; Mott, Joan C.; Shelley, Heather J.; and Stafford, Anne: "The Prolongation of Survival Time in Asphyxiated Immature Foetal Lambs," *Journal of Physiology*, 168:43-64, Aug., 1963.

The methods and results of a study are described in which immature fetal lambs delivered by Cesarean section under general anesthesia, were asphyxiated. Some received intravenous infusions of glucose and sodium carbonate, or glucose only, or sodium carbonate only. Responses were recorded and are described. It was found that "when glucose and a base were infused together a high rate of glycolysis was maintained and survival was prolonged," but infusion of either the base or glucose alone was ineffective. "It was concluded that if glycolysis is maintained during asphyxia by checking the fall in arterial pH and providing glucose as substrate, sufficient energy may be available to maintain both the circulation and the integrity of the tissues for longer than in untreated lambs."

249. Dayton, Delbert H.: "Early Malnutrition and Human Development," *Children*, 16:210-217, Nov.-Dec., 1969.

Contained in this review article are descriptions of current studies and research needs in this area. It is important that research be done to determine the critical periods of development where malnutrition can produce organic change. The reversability or irreversability of this change should also be determined. The effect of malnutrition on mental development are considered. Studies in this area are in need of validation in larger and longitudinal studies. Also described are methods of assessing the nutritional status of a population or of an individual. Possible solutions for the problem of malnutrition are briefly presented.

250. DeGeorge, Frances V.; Nesbitt, Robert E.L., Jr.; and Aubry, Richard H.: "High-Risk Obstetrics. VI. An Evaluation of the Effects of Intensified Care on Pregnancy Outcome," *American Journal of Obstetrics and Gynecology*, 111:650-657, Nov. 1, 1971. (Series: For I see #31, II see #695, III see # 32, IV see #721, V see #33.)

Studied at the High-Risk Clinic of the Upstate Medical Center, Syracuse, New York were 55 Negro and 98 Caucasian obstetric patients who had had at least two previous conceptions and who had "their initial visits to the High-Risk Clinic before the week of termination of their two preceding pregnancies." Methods of study and resulting data are presented. "In the Negro sample, only random differences were observed among the 3 pregnancies, i.e., the first high-risk-care pregnancy and the 2 prior gestations. However, in the Caucasian sample the results revealed that a higher proportion of pregnancies receiving intensified care achieved more than 35 weeks of gestation and resulted in live births than in either of the 2 control pregnancies. In both instances, the differences among the proportions in the three pregnancies are statistically significant, thus indicating the positive influence of specialized care on pregnancy outcome in this sample." Implications are considered.

251. Dekaban, Anatole. *Neurology of Early Childhood*. Baltimore: Williams and Wilkins, 1970. 488 pp.

This book is a revision and extension of the author's "Neurology of Infancy" published in 1959. The scope of this volume includes the preschool years. Dr. Dekaban traces the anatomical and physiological development of the central nervous system from birth to age six and comprehensively presents the principles of the neurological and developmental examination as it relates to the young child. The remainder of the text is then devoted to the consideration of the major neurological disorders occurring in early life. Cerebral palsy is discussed in Chapter 9. Emphasized within the chapter are the variety of lesions encountered and the importance of early diagnosis and treatment. The conditions of hemiplegia, cerebral diplegia, bilateral hemiplegia, quadriplegia, paraplegia, and monoplegia are differentiated and described. Bibliographies follow each chapter.

252. Dekaban, Anatole S.; Cone, Thomas E., Jr.; Riva, Hubert L.; and Lieberman, Jacob E.: "Correlation of Fetal Wastage and Condition of Offspring with Maternal State During Gestation, and Circumstances of Delivery in 4,156 Pregnancies. I. Demographic Characteristics and Summarized Results of Data," *American Journal of Obstetrics and Gynecology*, 83:532-543, Feb. 15, 1962. (Series: For II see #253.)

A study, begun in 1956 by the NINDB "to evaluate the possible influence of prenatal and intranatal factors on the fetal and neonatal mortality and infant morbidity" is the subject of this article and the one following. Details from all deliveries, including abortions, occurring during a one-year period in two military hospitals were carefully noted. Three groups of infants were identified: Group A contained infants who had abnormalities in the neonatal period or who resulted from complicated pregnancies; Group B consisted of the normal or control infants; Group C contained the cases of abortion. The subjects, procedures, terms used, and follow-up methods are described in detail. Results when the three groups were compared with respect to demographic factors and obstetrical and medical histories are given and commented upon.

253. Dekaban, Anatole S.; Cone, Thomas E., Jr.; Riva, Hubert L.; and Lieberman, Jacob E.: "Correlation of Fetal Wastage and Condition of Offspring with Maternal State During Gestation, and Circumstances of Delivery in 4,156 Pregnancies. II. Analysis of the Main Distribution of the Outcome of 4,156 Pregnancies," *American Journal of Obstetrics and Gynecology*, 83:544-550, Feb. 15, 1962. (Series: For I see #252.)

In Part II of this study, findings are reported on the pregnancy outcomes with emphasis on fetal and neonatal deaths, and abnormalities in the surviving infants. Follow-up exams were given at six weeks and at six, twelve, and eighteen months. Methods are described in Part I. The 1,277 cases contained in Group A are analyzed. Included in this group were previable infants, stillbirths, neonatal and infantile deaths, premature infants, and "926 surviving infants whose gestation, parturition, or condition during the initial hospital stay was abnormal." Abnormalities seen in these surviving babies are listed in a table, and comparison is made with abnormalities found in Group B, the normal controls.

254. de la Rama, Fernando E., Jr., and Merkatz, Irwin R.: "Evaluation of Fetal Scalp pH with a Proposed New Clinical Assessment of the Neonate," *American Journal of Obstetrics and Gynecology*, 104:93-99, May 1, 1970.

A total of 467 fetal scalp blood samples were obtained from 208 high risk obstetrical patients during labor "or from the time of first clinical signs of fetal distress." The characteristics of the patients and the sampling methods used are described. pH, Pco_2, and Po_2 readings were done immediately. One and five minute Apgar scores were given, and after all needed resuscitation measures had been performed, the infants were rated on a "resuscitation index (R.I.)." The rating system is described as are the results of several comparisons and correlations. The R.I. "was found to correlate better with the pH values than did the Apgar scores." The advantages and limitations of assessing the condition of the fetus by serial fetal scalp sampling are discussed. Increased usage is favored.

255. del Mundo-Vallarta, Josefina, and Robb, J. Preston: "A Follow-Up Study of Newborn Infants with Perinatal Complications; Determination of Etiology and Predictive Value of Abnormal Histories and Neurological Signs," *Neurology*, 14:413-424, May, 1964.

The purposes of the study reported are presented and discussed. Fifty-seven newborns with perinatal complications were given a neurological examination and a thorough history was taken. A similar process was repeated for 52 of the infants at 6 months of age and for 51 at 1 year of age. Results are reported including "possible factors causing the cerebral abnormality," "the significance of neurological signs found in the newborn period," and "significance of diagnostic procedures done in the newborn period," as well as "neurological and other findings at follow-up." The infants were found to have been accurately assessed in the newborn period. "Perinatal complications were found to be important etiological factors in the causation of neurological defects in 27 newborn infants," and 12 neurological signs in the newborn period were found to have "high predictive values of future neurological abnormality."

256. DeLicardie, Elsa R.; Vega, Leopoldo; Birch, Herbert G.; and Cravioto, Joaquin: "The Effect of Weight Loss from Birth to Fifteen Days on Growth and Development in the First Year," *Biology of the Neonate*, 17:249-259, 1971.

In a Mexican village 16 infants were found who weighed less at age 15 days than they had at birth. All had had birth weights greater than 2500 grams. These 16 children were matched for birth weight and body length, and gestational age with 16 children in the village who had not followed this birth weight loss pattern. All children were examined regularly and compared as described during the first year of life. Resulting data are presented. "The infants who weighed less than birth weight at 15 days continued to weigh less than their matched controls throughout the first year, and to lag behind them in total body length, head circumference, chest circumference, arm circumference, and skinfold thickness. No significant difference in the course of behavioral development between the two groups was found."

257. Demir, Remz, and Guess, Doug: "Mobility Training for Multiple Handicapped Retarded Children," *Journal of Rehabilitation*, 36:30-31, July-August, 1969.

A program, initiated for such children at the Kansas Neurological Institute, is described. Goals are listed, and specific apparatus used are explained "along with their intended area of mobility enhancement." Also described are the methods used to assess the program and the children involved.

258. deMuralt, G.: "The Prophylaxis of Kernicterus," *Developmental Medicine and Child Neurology*, 4:133-146, Apr., 1962.

The features and outcome of this condition are briefly described. The following causes of kernicterus are individually discussed with concentration placed on the first: hemolytic disease of the newborn, prematurity, hyperbilirubinemia in full term infants, infections, rare diseases, and drugs. Incidence and preventive methods are briefly considered.

259. Denhoff, Eric. *Cerebral Palsy; The Preschool Years: Diagnosis, Treatment, and Planning*. Springfield, Illinois: Charles C. Thomas, 1967. 125 pp. (American Lecture Series, No. 690.)

This volume contains a large amount of information concerning the early diagnosis and treatment of cerebral palsy. After listing and explaining the "syndromes of cerebral dysfunction," Dr. Denhoff discusses the informational sources, such as the medical history, which aid the physician in making a diagnosis. Suspect conditions seen in the newborn period and in subsequent neurological examinations are outlined in a chapter on diagnosis. "Laboratory diagnosis" is dealt with in an additional chapter. A chapter entitled "The Changing Picture" describes studies which indicate the problems involved in the early identification of cerebral palsy. The various procedures employed in treatment are discussed in a lengthy chapter. Numerous tables are found both within the text and in the extensive appendix. A bibliography is included.

260. Denhoff, Eric: "Developmental Highlights," *Clinical Orthopaedics and Related Research*, 47:19-29, July-Aug., 1966.

This article was written "to acquaint the orthopaedic surgeon with the various, nonorthopaedic complications of cerebral palsy." The importance of early identification and early treatment is stressed with the early signs of cerebral palsy described. The majority of the paper is concerned with five therapeutic periods in the cerebral palsied child's development. These periods are "(1) perinatal-neonatal, (2) infancy, (3) preschool years, (4) school years, and (5) postschool years." Each is individually discussed with respect to treatment and complications.

261. Denhoff, Eric: "Early Recognition of Cerebral Dysfunction in Pediatric Practice." Paper prepared for the Symposium on "Cerebral Dysfunction: A Treatment Program for Young Children," *Clinical Pediatrics*, 5:334-341, June, 1966.

The process of assessing neurological function in the normal infant is explained with the postural reflexes and methods of their elicitation individually described. The "common abnormal signs" which, if present, indicate a "neurologically suspect" infant are discussed. Detailed tables are included in which are presented the roles of the various specialists with respect to the prevention and treatment of cerebral dysfunction during "the periods of the child's life when each specialist is most important."

262. Denhoff, Eric, and Holden, Raymond H.: "Early Diagnosis of Cerebral Palsy by Assessment of Upper Extremities," *Clinical Orthopedics and Related Research*, 46:37-43, May-June, 1966.

Evaluation of the upper extremities with respect to developmental characteristics, tonus, and postural reflexes can aid in the early diagnosis of cerebral palsy. These three methods are described with those reflexes that are of value in early diagnosis being individually considered. Also discussed are those aspects of the newborn examination, in such methods as those of Andre-Thomas and Prechtl, that deal with upper extremity assessment. The concept of "changing diagnosis" as the child develops and the importance of recognizing sensory impairment in the hands of cerebral palsied children are explained.

263. Denhoff, Eric, and Litchman, Henry M.: "Differential Diagnosis of Delayed Walking," *Rhode Island Medical Journal*, 50:831-832, 835, Dec., 1967.

A case is presented in detail to illustrate the problems involved in the differential diagnosis of delayed walking and to demonstrate the battery of tests which can be administered.

264. Denhoff, Eric, and Robinault, Isabel Pick. *Cerebral Palsy and Related Disorders; A Developmental Approach to Dysfunction*. New York: McGraw-Hill, 1960. 421 pp.

After defining terms and outlining etiological factors, the authors describe the syndromes of cerebral palsy, mental deficiency, epilepsy, and the "hyperkinetic behavior syndrome." Associated disorders of a sensory and perceptual-motor nature are the subject of Chapter 3. In subsequent chapters, a comprehensive discussion of diagnosis and treatment is presented with the team approach emphasized throughout. The final chapter consists of 13 case histories which illustrate the developmental approach. Numerous case histories are also included within the text, and bibliographies follow each chapter.

265. Derham, R.J.: "The Early Management of Cerebral Palsy," *Developmental Medicine and Child Neurology*, 9:30-32, Feb., 1967.

A short report is given on the early assessment and management of 100 infants and young children with cerebral palsy treated in a unit of a children's hospital. The social problems resulting from a diagnosis of cerebral palsy are briefly mentioned, and the great value of early physiotherapy and occupational therapy is stressed.

266. Desmond, Murdina M.; Montgomery, John R.; Melnick, J.L.; Cochran, Gloria G.; and Verniaud, Willie: "Congenital Rubella Encephalitis; Effects on Growth and Early Development," *American Journal of Diseases of Children*, 118:30-31, July, 1969.

Briefly described are the developmental and neurological abnormalities found in a group of congenital rubella patients studied from birth.

267. Desmond, Murdina M., and Rudolph, Arnold J.: "Progressive Evaluation of the Newborn Infant," *Postgraduate Medicine*, 37:207-212, Feb., 1965.

The value of serial evaluations of the neonate during the period of transition from intra-uterine to extra-uterine life is stated. With serial evaluation, it is possible to determine the infant's progress in his transition and to detect problems which are interfering with transition." Three examinations are individually considered that would be included in such serial evaluation. These exams are the delivery room exam, which would include the determination of Apgar scores; the "natal day examination"; and the "postnatal day examination", conducted after the infant is 24 hours old.

268. Desmond, Murdina M.; Rudolph, Arnold J.; and, Phitaksphraiwan, Phuangnoi: "The Transitional Care Nursery; A Mechanism for Preventive Medicine in the Newborn," *Pediatric Clinics of North America*, 13:651-668, Aug., 1966.

Described are the findings resulting from the establishment of a transitional care nursery at Jefferson Davis Hospital, Houston in 1960. Infants were closely observed from birth "until they appeared stable or until a presumptive diagnosis of neonatal complication was made - time periods varying from six to 72 hours." Considered are the infant's reaction to delivery and circumstances in which the transition of the newborn is complicated, including the case of the immature infant,"infants with low Apgar scores," "infants affected by maternal medications," and infants who had developed in abnormal intrauterine environments. Several modifications of delivery room and nursery practices are suggested, and some "specific recommendations" are made. Conclusions are listed in the "Summary."

269. Desmond, Murdina M.; Rudolph, Arnold J.; and Pineda, Rebecca G.: "Neonatal Morbidity and Nursery Function," *Journal of the American Medical Association*, 212:281-287, Apr. 13, 1970.

Morbidity in the nursery was studied for one year at the Jefferson Davis Hospital, Houston, which serves an indigent population and is affiliated with Baylor College of Medicine. Detailed findings are reported on 6,211 live births. One-fourth of these infants were noted to have "major malformation or signs of illness" during their hospital stay. This morbidity is classified in a chart. Implications for the design and function of the nursery are made.

270. Devine, Barbara T.: "Whirlpool Safety," *Journal of the American Physical Therapy Association*, 43:663, Aug., 1963.

A modified "infaseat" for use with infants in the whirlpool is described and pictured.

271. Diamond, Florence: "A Play Center for Developmentally Handicapped Infants," *Children*, 18:174-178, Sept.-Oct., 1971.

In this article is described the playschool program for developmentally handicapped infants, ages 3 months to 2 1/2 years, at the Edward Levy Infant Center (ELIC). This Center is part of the Villa Esperanza, "a nonprofit voluntary school in Pasadena, Calif." The five fundamental principles upon which ELIC is based are listed, and the setting of the Center, the cooperation of other agencies, the curriculum, and parental involvement in the program are discussed.

272. Diamond, Ivan: "Kernicterus: Revised Concepts of Pathogenesis and Management," *Pediatrics*, 38:539-546, Oct., 1966.

Evidence is presented which supports "the proposed use of albumin in the prevention and treatment of bilirubin encephalopathy alone or in association with exchange transfusion" and refutes "the concept of 'immaturity' of the neonatal blood - brain barrier." Possible explanations "for the almost exclusive occurrence of bilirubin encephalopathy in newborn infants" are considered as are possible mechanisms involved in the toxicity of bilirubin. Comments on the article are made by the following physicians: Dr. Gerald B. Odell, Drs. Lois Johnson and Thomas R. Boggs, and Dr. Jerold F. Lucey.

273. Diamond, Ivan, and Schmid, Rudi: "Experimental Bilirubin Encephalopathy; The Mode of Entry of Bilirubin-C into the Central Nervous System," *Journal of Clinical Investigation*, 45:678-689, May, 1966.

Previous work in the area is reviewed, and the method, results, and discussion of a study are presented which was designed to assess "the effect of altered bilirubin-binding properties of the plasma on the pigment level in the brain" of animals. Results are reported regarding experiments on newborn guinea pigs and on adult Gunn rats, on electrophoretic studies, and on studies of bilirubin neurotoxicity in vivo. Principle findings are listed in the "Summary." "The study provides direct experimental support for the proposed use of albumin in the prevention and treatment of bilirubin encephalopathy in neonatal hyperbilirubinemia, alone or in association with exchange transfusion. It also demonstrates the importance of early correction of acidosis and the deleterious effect of compounds that may displace bilirubin from albumin."

274. Diamond, Ivan, and Schmid, Rudi: "Neonatal Hyperbilirubinemia and Kernicterus; Experimental Support for Treatment by Exposure to Visable Light," *Archives of Neurology*, 18:699-702, June, 1968.

In order to test experimentally the concept that illumination of bilirubin may be an alternative to exchange transfusions in treating hyperbilirubinemia because of its ability to decompose the pigment, "newborn guinea pigs were infused with equivalent amounts of intact C^{14}-bilirubin of its labeled photodecomposition products obtained by exposure of the pigment to light in vitra." Methods are described in detail. The brains of the guinea pigs infused with the decomposed pigment contained much less radioactivity, and all so infused survived while 11 of the 30 infused with bilirubin died. Results are analyzed.

275. Diamond, Liebe Sokol, and Levin, Nancy: "Surgical Management of Lower Extremity Cerebral Spastic Paralysis," *Physical Therapy*, 45:1148-1153, Dec., 1965.

The surgical treatment of cerebral palsy is historically reviewed very briefly. Described are the surgical treatment goals and methods practiced with spastic cerebral palsied children having lower extremity involvement at the James L. Kernan Hospital, Baltimore. The importance of locating the child's primary area of difficulty is discussed. Considered separately are tendocalcaneus lengthening, hip problems, and foot problems. The surgical management of the very young cerebral palsied child is frequently mentioned.

276. Diamond, Louis K.: "Protection Against Rh Sensitization and Prevention of Erythroblastosis Fetalis," *Pediatrics*, 41:1-4, Jan., 1968.

Work done in the areas of identification and treatment of erythroblastosis fetalis and prevention of Rh sensitization is reviewed with the latter area emphasized.

277. Diedrich, William M.; Allender, Barbara; Byrne, Margaret C.: "The Value of a Preschool Treatment Program for Severely Crippled Children," *Exceptional Children*, 27:187-190+, Dec., 1960.

Fifteen children, ages 27-71 months, who had attended the Crippled Children's Nursery School in Kansas City, Missouri for 12 months were compared with respect to "upper and lower extremity development, receptive and expressive language, and personal-social development" to 16 children, ages 21-81 months "who had entered the program a year later." The experimental children were evaluated after six and after twelve months of training, and improvement was noted in all areas. When the two groups were compared, the "treated" group was superior in four out of the five areas tested.

278. Diemer, K., and Henn, R.: "The Capillary Density in the Frontal Lobe of the Mature and Premature Infants," *Biologia Neonatorum*, 7:270-279, 1964.

The relationship between oxygen consumption of tissues and capillary density is discussed. It is stated that "the greater the oxygen consumption of a tissue, the less is the average distance between the capillaries." To measure the capillary density of the newborn brain, the frontal lobes of 10 term and five premature infants, who had died shortly after birth, were examined. The average distance between capillaries in the term infants was found to be significantly less than in the premature babies. Comparisons with the adult brain are made and the concept of the "physiological immaturity" of the brain is discussed.

279. "Differentiating between Premature Infants and Low Weight at Term," *Journal of the American Medical Association*, 203:7:30, Feb. 12, 1968.

Reported is a study of 502 low birth weight infants. A "significant difference in sequelae" was noted between the dysmature and the premature infants. It is felt on the basis of results "that the dysmature is at least as subject to neurological disorder as is the premature." "However, the dysmature is less likely to develop cerebral palsy."

280. Ditchburn, R.K.; Wilkinson, R.H.; Davies, Pamela A.; and Ainsworth, Patricia: "Plasma Glucose Levels in Infants Weighing 2,500 G and Less Fed Immediately After Birth with Breast Milk," *Biologia Neonatorum*, 11:29-35, 1967.

Plasma glucose levels were regularly estimated in 53 newborns who weighed 2500 grams or less at birth and who were fed undiluted breast milk from "immediately after birth and during the first four days of life." Although statistically not significant, the male infants and those babies weighing 2000 grams or less at birth had lower mean levels than did the others. No infant was found to have "persistently low levels." "Mean plasma glucose levels of infants of birth weight more than two standard deviations below the mean for gestation did not differ from those of the group taken as a whole." Implications concerning hypoglycemia are considered.

281. Dobbing, J.: "The Effect of Undernutrition on Myelination in the Central Nervous System," *Biologia Neonatorum*, 9:132-147, 1966.

It is hypothesized that the resistance of the brain in undernutrition "is related to the relative metabolic stability of its structural components." If this is the case, the brain would be quite vulnerable during the myelination process because of the high degree of activity occurring. Three experiments conducted to test this hypothesis are briefly described. When rats with minimumly malnourished during the period of maximum myelination, cholesterol concentration was significantly reduced in their brains. When rats were more severely malnourished, but at the end of the maximum myelination period, cholesterol concentration was not reduced. When pigs were very severely malnourished during "the second half of the period of maximum rate of myelination, and prolonged to one year of age," "the findings lie between those of the two groups of rats." It is concluded "that the undernutrition can effect myelination depending on the timing of the stress, its severity and its duration."

282. Dobbing, J., and Widdowson, Elsie W.: "The Effect of Undernutrition and Subsequent Rehabilitation on Myelination of Rat Brain as Measured by Its Composition," *Brain*, 88:357-366, 1965.

One hundred eighty rats were alternately divided into experimental and control groups. The controls were fed a normal pellet diet while the experimentals were given the same food but in severely restricted amounts from weaning. Ten rats from each group were killed each week from the 4th-11th weeks of life. The 10 remaining experimental rats were allowed to feed normally until age 19 weeks and were then killed as were the remaining 10 control rats. Brains were examined and methods are described. Results concerning body weight, brain weight, brain composition, and whole brain constituents are presented. "Complete rehabilitation was achieved during the later period of unlimited nutrition."

283. Dobbing, John: "Undernutrition and the Developing Brain; The Relevance of Animal Models to the Human Problem," *American Journal of Diseases of Children*, 120:411-415, Nov., 1970.

Two theories concerning undernutrition and brain growth are outlined and compared. It is noted that any such hypothesis are highly theoretical and have not been supported by "direct evidence." Indirect evidence from animal experiments, its relevance for man, and the difficulties in human research are discussed. An unpublished study of brain growth on over 200 normal human brains of fetuses and young children is briefly presented, and three conclusions are drawn from it. Implications for the future are discussed.

284. Doherty, Jacqueline Fike: "Weighted Shoulder Harness for Children with Cerebral Palsy," *Physical Therapy*, 49:503-504, May, 1969.

The benefits and the steps in the construction of this weighted shoulder harness to be used with children having athetosis in order to "stimulate postural reflexes, promoting trunk stability" are described. Diagrams are included.

285. Doll, Edgar A.: "An Attainment Scale for Appraising Young Children with Expressive Handicaps," *Cerebral Palsy Bulletin*, 27:3-5, Oct., 1966.

The development and description of such a scale as the title suggests is presented. The Scale is designed for use with children from birth to age 84 months. Three major categories of behavior are assessed: "physical, social, and intellectual." These three are then divided into eight subcategories: "ambulation, manipulation, rapport, communication, responsibility, information, ideation and creativity." The Scale is thus comprised of one item for each of the eight subcategories at each of the six-month intervals throughout the age span designated. The 112 items, the method of scoring, and the uses of the Scale are described.

286. Doman, Robert J.; Spitz, Eugene B.; Zucman, Elizabeth; Delacato, Carl H.; and Doman, Glenn: "Children with Severe Brain Injuries; Neurological Organization in Terms of Mobility," *Journal of the American Medical Association*, 174: 257-262, Sept. 17, 1960.

Reported are the methods used and the results obtained when a new program of treatment for brain-injured children was used. Seventy-six such children, having a mean age of 30 months and with various types of brain pathology, were treated for periods ranging from 6 to 20 months. "The program consisted of permitting the child normal developmental opportunities in areas where the responsible brain level was undamaged, externally imposing the bodily patterns of activity which were the responsibility of damaged brain levels, establishment of hemispheric dominance and early unilaterality, respiratory improvement as measured by vital capacity, and sensory stimulation to improve bodily awareness and position sense." Two types of treatment were employed and are described. The results in four categories were evaluated and are reported. They were concluded to be encouraging and the method will be studied further.

287. Donald, Ian: "Sonor as a Method of Studying Prenatal Development," *Journal of Pediatrics*,75:326-333, Aug., 1969.

By using sonor, it is possible to study the developing fetus from the early weeks of pregnancy until delivery. It is a method which does not presently produce known hazards to the fetus. The value in its use, especially in cases of high risk, is that it can indicate fetal development apart from the normal. The technique is still too crude to detect specific fetal abnormalities. A short description with pictures of the principle of the method and the apparatus is given.

288. Donnai, P.; Gordon, H.; Harris, Dorothy A.; and Hughes, Elizabeth A.: "Further Studies in the Assessment of Gestational Age by Amniotic Fluid Analysis," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 78:603-609, July, 1971.

The results of estimating gestational age by the measurement of the liquor amnii creatinine concentration (154 estimations in 98 patients) and by using amniotic fluid cytology (60 of the same patients) were compared. Also investigated were the results when the two methods were used in combination. "Comparison of results suggests that fetal maturity of more than 36 weeks is associated with a creatinine concentration in excess of 1.7 mg. per cent or an orange staining cell count in excess of 10 per cent. When the orange-staining cell count was less than 10 per cent then creatinine estimation was found to improve the accuracy of prediction of fetal maturity."

289. Donnelly, James F., Jr.: "Etiology of Prematurity," for the Symposium on Prematurity, edited by Edward H. Bishop. *Clinical Obstetrics and Gynecology*, 7:647-657, Sept., 1964.

Individually considered are the major factors contributing to the incidence of prematurity. These include socioeconomic factors; maternal factors such as height, nutrition, age, and parity; various medical and obstetrical complications; smoking; heart volume; and certain fetal conditions. Separate papers in this Symposium, published in this volume, are then devoted to some of these factors.

290. Donovan, Desmond E.; Coues, Pamela; and Paine, Richmond S.: "The Prognostic Implications of Neurologic Abnormalities in the Neonatal Period," *Neurology*, 12:910-914, Dec., 1962.

A study of 192 full term babies who were given neurological examinations as newborns and at age one year is presented. Methods are described, and findings show that "the conventional neurologic signs and infantile postural automatisms applicable to the newborn period all seemed individually and in combination of only very limited predictive value as to the likelihood of abnormality at one year."

291. Dorward, Barbara: *Teaching Aids and Toys for Handicapped Children*. Washington, D.C.: The Council for Exceptional Children, 1960. 63 pp.

On the pages of this manual teaching aids and toys are illustrated with the purpose, the method of use, and the description given for each. Possible modifications are also often mentioned. Most of the items can be made easily and inexpensively from wood.

292. Dotson, Ellidee, and Desmond, Murdina M.: "The Evaluation of Muscle Tonus in the Newborn," *Neurology*, 14:464-471, May, 1964.

"A variety of methods were utilized to evaluate muscle tonus in newborn infants" in a described three-part study. Part 1 was concerned with "a description of the posture of 'normal' newborn infants," Part 2 with "a study of the relaxation of muscle groups after repetitive passive ranges of motion," and Part 3 with "a quantitative assessment of the resistance of the biceps brachii to passive stretching." The subjects, the study method, and the results are presented for each part. Wide variability of muscle tonus was revealed "to be a characteristic of the healthy, newly born infant."

293. Downs, Marion P., and Hemenway, W.G.: "Report on the Hearing Screening of 17,000 Neonates," *International Audiology*, 8:72-76, Feb., 1969.

Described are the methods, results, and conclusions of a screening program in which the hearing of 17,000 neonates was tested during 1965-1967 in eight Denver hospitals. Volunteer women were trained to conduct the screening. The incidence of hearing deficiency at birth was found to be 1 in 1000. One infant, not detected during screening, "was found at 8 months of age to have a fairly severe hearing loss," and there was a 3% incidence of those infants suspected of having hearing deficiency actually having normal hearing.

294. Downs, Marion P., and Sterritt, Graham M.: "A Guide to Newborn and Infant Hearing Screening Programs," *Archives of Otolaryngology*, 85:15-22, Jan., 1967.

The purposes, personnel equipment, procedures, results of testing almost 10,000 newborns, etc. of a neonatal hearing screening program, conducted in the newborn nurseries of several Denver hospitals, are described. The benefits to the child of such an early detection program are stressed.

295. Doyle, Francis W., and Outland, Richard: "Orthopedically Handicapped Children in California," in *Special Education Programs within the United States*, edited by Morris Val Jones. Springfield, Illinois: Charles C. Thomas, 1968. Pp. 17-39.

The program developed for these children in the state of California is presented. Considered in detail are the schools for cerebral palsied children with the objectives, the enrollment requirements, the referral procedures, the diagnostic evaluation process, the residential program, and other aspects of these schools described. The importance of early education, treatment, etc. is stressed.

296. Drage, J.S., and Berendes, H.: "Apgar Scores and Outcome of the Newborn," *Pediatric Clinics of North America*, 13:635-643, Aug., 1966.

The Apgar scoring system, as used by the hospitals participating in the Collaborative Project on Cerebral Palsy, etc., is described, and the recording form used is reproduced. Also described are the results of this scoring and relationships found in "the first 17,221 infants born under the study by the 'Project'." The Apgar score is related to findings concerning neonatal mortality, birth weight, and neurologic abnormality with graphs presented and the value of the Apgar score is evaluated and discussed. "Strong" associations were found between low 1 and 5 minute scores and low birth weights, "between low scores and neonatal mortality," and between low 5 minute scores and morbidity, and this (latter) association remains when birth weight is controlled."

297. Drage, J.S.; Kennedy, C.; Berendes, H.; Schwarz, B.K.; and Weiss, W.: "The Apgar Score as an Index of Infant Morbidity; A Report from the Collaborative Study of Cerebral Palsy," *Developmental Medicine and Child Neurology*, 8:141-148, Apr., 1966.

The methodology and results of a study in which the one and five minute Apgar scores of 14,115 infants were used to predict neurological deficits are reported. All children were neurologically examined at one year of age. Results are reported with regard to neurological abnormalities, and more specifically, with regard to motor retardation, muscle tone, and prehensive grasp. Although both scores were found to be of value, the five-minute score was the better predictor of infant morbidity. Children in the lowest birth weight group were consistently found to have a higher proportion of abnormality. When birth weight was controlled, the highest proportion of abnormality was observed in the group scoring 0-3 on the five-minute Apgar. Thus it appeared in this study that "the predictability value increased considerably when birth weight and five-minute scores are combined." Data are statistically analyzed in numerous charts and graphs.

298. Dreyfus-Brisac, Monod N.; Parmelee, A.H.; Prechtl, H.F.R.; and Schulte, F.J.: "For What Reasons Should the Pediatrician Follow the Rapidly Expanding Literature on Sleep?; A Panel Discussion on Sleep Cycles in Newborn Infants," *Neuropadiatrie*, 1:349-372, Feb., 1970.

The subject is discussed in four separate papers presented on these pages. Dr. Schulte describes the value of analyzing neonatal sleep behavior in a paper entitled, "Where Might Be the Gold in Those Hills?" In the article, "Sleep Studies for the Neurological Assessment of the Newborn," Dr. Parmelee reviews the work done on the subject and emphasizes "the importance of the study of sleep behavior in the newborn infant as a means of neurological assessment." Drs. Dreyfus-Brisac and Monod describe the sleep behavior in "the normal full-term neonate" and contrast it with that of the "pathological full-term new-born." Three types of features that may be observed in the abnormal neonate are explained. In the last paper Dr. Prechtl discusses the "Use and Abuse of Polygraphy."

299. Drillien, C.M.: "Classification of Newborn Infants by Weight and Gestation," *Developmental Medicine and Child Neurology*, 10:667-670, Oct., 1968.

Because of the realization that infants of low birth weight are in many ways not a homogenous group, standardized criteria for the classification of such infants by birth weight and by duration of gestation is needed. Such criteria would aid in the assessment of risks and "the requirements of the individual infant for particular postnatal care." The work done in this area by the American Academy of Pediatrics Committee on Fetus and Newborn and by others is reviewed.

300. Drillien, C.M.: "Possible Causes of Handicap in Babies of Low Birthweight," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 72:993-997, Dec., 1965.

One hundred sixty-seven children, having had birth weights of 2000 g. or less were examined at age seven. The influences of sex, pregnancy complications, and social class on the condition of these children are described. The results revealed the probable causes of the defects which are categorized. Of the children having severe defects, "it seemed likely that over one-half had originated in early foetal life, one-fourth were caused partly or entirely by pregnancy complications, and in one-fourth the cause was uncertain." Maternal infertility, as defined, was also found to be present in a high percentage of the mothers having children with severe handicaps. The practical implications are briefly considered.

301. Drillien, C.M.; Ingram, T.T.S.; and Russell, Elspeth M.: "Comparative Aetiological Studies of Congenital Diplegia in Scotland," *Archives of Disease in Childhood*, 37:282-288, June, 1962.

Two groups of diplegic patients, divided by birth weight, were compared "with groups of prematurely and maturely born children derived from approximately the same Scottish population" with respect to social class; neonatal course; and the maternal factors of age at marriage; premarital conception; age of birth of studied child, spacing of other conceptions; fertility; abnormalities in other conceptions; pregnancy; labor; and delivery. Results are presented.

302. Drillien, C.M.; Ingram, T.T.S.; and Russell, Elspeth M.: "Further Studies of the Causes of Diplegia in Children," *Developmental Medicine and Child Neurology*, 6:241-249, June, 1964.

In this paper the results of a further evaluation of a previous study by the authors (Arch. Dis. Childhood, 37:282, 1962) are reported. Additional attention was given to the intelligence of the patients and the presence of associated defects. An attempt is made to group the studied cases of diplegia into categories according to possible causal factors. It is shown that multiple causative factors are involved.

303. Drillien, Cecil Mary: "The Incidence of Mental and Physical Handicaps in School Age Children of Very Low Birth Weight, II.," *Pediatrics*, 39:238-247, Feb., 1967.

Considerable data are reported on 50 children over five years of age, who had weighed three pounds or less at birth. Included are findings relating to intelligence, schooling, physical defects and behavior. Factors known to affect the incidence, the survival, and the outcome of infants of low birth weight were studied and results are described. The incidence of handicap in these children was compared to that of the group described in the first part of this study. In the "Summary" are listed the major findings. Twenty-eight per cent of the 50 children had "epilepsy and/or cerebral palsy."

304. Dubowitz, Lilly M.A.; Dubowitz, Victor; and Goldberg, Cissie: "Clinical Assessment of Gestational Age in the Newborn Infant," *Journal of Pediatrics*, 77:1-10, July, 1970.

Previous studies concerned with assessing gestational age by neurological assessment and by studying external characteristics are reviewed. One hundred sixty-seven infants were scored on 10 neurologic and 11 external characteristics during the first five days of life. These criteria and the scoring system used are presented. The mothers were then interviewed and in all cases the date of the last menstrual period was certain. The external characteristics correlated with gestational age better than the neurologic signs did, but the total score, using both groups of criteria, yielded the best correlation (0.93). The method of assessing gestational age was concluded to be objective, reliable, reproducible, and easy to learn.

305. Dubowitz, Victor: "Asymmetrical Moro Response in Neurologically Normal Infants," *Developmental Medicine and Child Neurology*, 7:244-248, June, 1965.

When eliciting the Moro response, it is important that the head be centered in the midline and that both hands are open. Three case histories of infants displaying an asymmetrical Moro response but having no neurological abnormalities are presented.

306. Duc, G.: "Assessment of Hypoxia in the Newborn; Suggestions for a Practical Approach," *Pediatrics*, 48:469-481, Sept., 1971.

The "general physiolcgy of oxygen transport" is reviewed, a classification system distinguishing four types of hypoxia is presented, and three neonatal situations associated with hypoxia are discussed. These clinical situations are neonatal asphyxia, cardiac malformation with right-to-left shunt, and hyaline membrane disease.

307. Dudgeon, J.A.: "Breakdown in Maternal Protection: Infections," *Proceedings of the Royal Society of Medicine*, 61:1236-1243, Nov., 1968.

Listed are the infectious agents which may cause fetal damage and the "effects of maternal infection on the foetus." Possible pathways by which infection may reach the fetus and the "aetological relationship between maternal infection and foetal damage" are described. Four factors are discussed which aid in the determination of whether or not the fetal infection will be established. These are the "maternal immunity" to the infectious agent, the "effectiveness of the placenta to act as a barrier," the resistance capacity of the fetus, and "the virulence of the invading organism." Another important pathogenic factor is the "aspect of timing" of the invasion by the agent. Numerous agents and their effects on the fetus are individually considered. A short "discussion" follows the article.

308. Dugdale, A.E.: "Screening Infants for Disease," *Clinical Pediatrics*, 9:568-570, Oct., 1970.

A rapid infant screening method, based on the measuring of growth and development, is described. The infant is classed A, B, C, or D on a presented table according to the measurement results. Each class is explained, and the importance of administering this method on each subsequent pediatric visit in order to gain a more thorough knowledge of each baby is stated.

309. Duhring, John L., and Greene, John W., Jr.: "Evaluation of Intra-Uterine Fetal Status," *Clinical Obstetrics and Gynecology*, 9:935-943, Dec., 1966.

Methods used to evaluate the "fetoplacental complex now available or conceivably available in the future" are discussed. Included are radioactive sodium clearance, fetal electrocardiography, diagnostic ultrasound, amniotic fluid biopsy, amnioscopy, analysis of fetal blood pH, vaginal cytology, and measurement of maternal urinary pregnanediol and estriol excretion.

310. Duncan, William R.: "Tonic Reflexes of the Foot; Their Orthopaedic Significance in Normal Children and in Children with Cerebral Palsy," *Journal of Bone and Joint Surgery*, 42-A:859-868, July, 1960.

"The concept of reflexly induced deformity," common in cerebral palsied patients, is explained in brief, and four recognized tonic reflexes of the foot are listed and pictured. The methods employed and the results observed when these reflexes were elicited in normal and in cerebral palsied children are presented. The reflexogenous areas, the sensory receptors, the reflex arcs, the associated movements, the age of disappearance, and the deforming effects of these reflex movements are discussed. With regard to therapy, three methods of altering a tonic reflex are described.

311. Dunn, Peter M.: "The Possible Relationship between the Maternal Administration of Sulphamethoxypyridazine and Hyperbilirubinemia in the Newborn," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 71:128-131, Feb., 1964.

Because of prolonged rupture of the membranes, sulphamethoxypyridazine was administered to nine women from two to 84 days before delivery. "All nine infants became jaundiced" with two of them requiring exchange transfusions. Information is given on the nine cases.

312. Durkan, James P., and Russo, G. Lee: "Ultrasonic Fetal Cephalometry: Accuracy, Limitations, and Applications," *Obstetrics and Gynecology*, 27:399-403, Mar., 1966.

The method was used with 100 fetuses and was evaluated for reliability. The average error of 4.13 mm was not considered to be "a serious limitation of the clinical usefulness of this technic." "Inherent difficulties in measurement of the fetal skull" are listed and discussed. The procedure would seem to be useful in cases of breech delivery, repeat Cesarean section, and hydrocephalus.

313. D'Wolf, Nancy, and Donnelly, Ella: "Physical Therapy and Cerebral Palsy." Paper presented at the Symposium on "Cerebral Dysfunction: A Treatment Program for Young Children," *Clinical Pediatrics*, 5:351-354, June, 1966.

Presented and illustrated is a "Guide to the Development of Gross Motor Skills from 1 Month to 2 Years" along with a similar guide for use with children ages 2-7 years. These are used to instruct parents in the basic exercises, etc. so that parents may then teach them to their children. These guides are presented as part of the Home Development Guidance Program of the Meeting Street School, Providence, R.I. Some basic therapeutic principles as they apply to the young cerebral palsied child are briefly considered.

314. Dyre, Trolle: "Incidence and Possible Relation to Athetosis of Neonatal Jaundice of Unknown Aetiology," *Archives of Disease in Childhood*, 39:85-91, Feb., 1964.

The incidence of "jaundice of unknown aetiology" was found to be 28.3% in a consecutive, select group of newborns who had survived the first week of life. The percentage of jaundiced infants increased with falling birth weight. Possible causal factors involved in this incidence rate are examined as is the etiology of kernicterus. Material from a study by Plum in 1957 is examined to answer questions concerning the relationship between "neonatal jaundice of unknown aetiology" and athetosis. The use of exchange transfusion in the prevention of kernicterus is also considered.

315. Eaves, Linda C.; Nuttall, J.C.; Klonoff, H.; and Dunn, H.G.: "Developmental and Psychological Test Scores in Children of Low Birth Weight," *Pediatrics*, 45:9-20, Jan., 1970.

Previous studies in the area are discussed with findings summarized, and the purposes of the reported study are listed. In this prospective study 351 low birth weight (LBW) children (less than 4 1/2 lbs.) and 207 control, "full birth weight" (FBW) children (over 5 1/2 lbs.) were and are being followed and compared as described with regard to behavioral development. The LBW group was divided into subgroups "on the basis of birth weight in relation to gestational age." Results are reported concerning a comparison of Griffith Developmental Test scores (DQ's) in the two groups, a comparison of boys and girls on the test scores both within and between the two groups, the effect of birth weight on test performance (DQ's and IQ's), and the relation between birth weight and socioeconomic status. Findings are interpreted, and the value of infant developmental scales in relation to subsequent IQ test scores is considered. Principle findings are listed in the "Abstract."

316. Eisenberg, Rita B.; Coursin, David B.; and Rupp, Nancy R.: "Habituation to an Acoustic Pattern as an Index of Differences Among Human Neonates," *Journal of Auditory Research*, 6:239-248, July, 1966.

Eight control neonates, 3 'suspect' neonates, and 2 'high-risk' neonates were repeatedly stimulated as described with a tonal pattern, and behavior was recorded as described. Behavioral data is presented. "Controls habituated in 20-37 trials; suspects took twice as long; high-risk subjects did not habituate. Differences in speed of habituation were associated with differential patterns of activation and response behavior." Differences among the groups were concluded to be "real and very probably related to intrinsic differences in the organization of brain stem mechanisms." "Whether these differences are constant with age remains to be determined."

317. Eisengart, M.A.; Gluck, L.; and Kessen, W.: "Early Feeding of Premature Infants; Effect on Blood Sugar and Gross Motor Activity," *Biology of the Neonate*, 17: 151-159, 1971.

"A motion picture technique for quantifying gross motor activity was used to study the effect of early feeding on activity in 32 premature infants. One group received 20% dextrose by gavage for the first 24 hours of life while the other was fasted during the same period. Measurements of blood sugar and motor activity were made at birth and at 12, 24, and 48 hours. Significant differences in blood sugar were noted at 12 and 24 hours. The fasted group exhibited decreasing motor activity during the experimental period while the early fed group demonstrated the reverse. The results show that blood sugar level can be maintained by early, oral feeding and that one functional effect is enhanced gross motor activity." Described are the techniques used to record motor activity, the procedures used, the infants studied, and the resulting data regarding blood sugar levels and motor activity.

318. Elizan, Teresita S., and Fabiyi, Akinyele: "Congenital and Neonatal Anomalies Linked with Viral Infections in Experimental Animals," *American Journal of Obstetrics and Gynecology*, 106:147-165, Jan. 1, 1970.

Twenty-three viruses are reviewed "for their ability to affect the developing embryo, fetus, or neonate of man and/or experimental animal models." The only two which have been definitely demonstrated "to be teratogenic in man" are the rubella virus and the cytomegalovirus. A six-page table is presented to summarize the experimental study which has been done on each virus.

319. Ellingson, Robert J.: "Variability of Visual Evoked Responses in the Human Newborn," *Electroencephalography and Clinical Neurophysiology*, 29:10-19, July, 1970.

A study is reported in which "summed visual evoked responses (VERs) were recorded repeatedly during the various phases of the wakefulness-sleep cycle on the first day of life, and again 24 hours later in six carefully selected full-term human newborns." On the basis of the analysis of these VER's, it was concluded that the newborn VER is "extremely variable," and until the conditions underlying this variability can be identified and controlled, the value of the newborn VER as a device to measure the clinical status of the individual newborn is very limited. However, the value of the VER as a device to study developmental changes in groups and for comparison of groups of "infants is affirmed." Also reported are results that indicate the increased stabilization of the VER after the neonatal period.

320. Elliott, P.M., and Inman, W.H.W.: "Volume of Liquor Amnii in Normal and Abnormal Pregnancy," *Lancet*, 2:835-840, Oct. 14, 1961.

The volume of liquor amnii was determined by using a described dye-dilution technique in 129 pregnant women of whom 35 were pre-eclamptic, 35 had hypertension, and 59 were normal pregnancies. Findings for each group are reported and compared. Six factors are listed which were found "to be most important" in influencing the liquor volume, and the clinical significance of the findings are discussed. Such a method may be very useful in determining the need to terminate pregnancy "to resure the foetus from an increasingly anoxic environment."

321. Ellis, Errington: "The Indications for Residential Treatment of Cerebral Palsy in the Early Years of Life," *Developmental Medicine and Child Neurology*, 5:32-34, Feb., 1963.

Considered are the roles of the therapist and the parents in treating the young cerebral palsied child. The Treatment policies for such children at the Percy Hedley Centre in Newcastle, England are briefly described. Young patients, living quite a distance from the Centre or having special problems, are allowed to have their mothers stay with them at the Centre for short periods (4-5 days) while being assessed, treated, etc.

322. Emanuel, Irvin, and Kenny, George E.: "Cytomegalic Inclusion Disease of Infancy," *Pediatrics*, 38:957-965, Dec., 1966.

Seven cases of cytomegalic inclusion disease in infancy are reported with "clinical, laboratory, and urological data" included. In comparison to other reported series, these infants were considered to have "milder and more varied clinical features." Case histories, including follow-up data, are presented. "One patient has microcephaly and spastic hemiparesis, and another is definitely retarded."

323. Engel, C.E., and Hansell, P.: "Use and Abuse of the Film in Recording the Behaviour and Reactions of the Newborn Infant," *Cerebral Palsy Bulletin*, 3:472-480, 1961.

The value of motion picture film for the recording of the normal infant, for early diagnosis, and for evaluation of treatment is stated. Standardization of apparatus and methods is necessary for comparability. "A practical method" of recording and projection is suggested.

324. Engel, R., and Benson, R.C.: "Estimate of Conceptional Age by Evoked Response Activity," *Biologia Neonatorum*, 12:201-213, 1968.

The value of knowing the length of pregnancy for purposes of diagnosis and treatment is mentioned. Studied was the correlation between conceptional age and "neurological maturation expressed by evoked response activity." Methods are given. It was concluded on the basis of results that "latency of evoked potentials contribute independently to the determination of fetal age," and when this method is combined with the physician's estimation of conceptual age, "the presumptive conceptional age" can usually be confirmed or denied correctly. Findings are listed in the "Summary."

325. Engel, R., and Young, N.B.: "Calibrated Pure Tone Audiograms in Normal Neonates Based on Evoked Electroencephalographic Responses," *Neuropadiatrie*, 1:149-160, Oct., 1969.

Pure tone audio-electroencephalographic tests were conducted on 138 neonates, ages 0 to 3 days with detailed methods described. "The results showed the neonatal evoked response levels are within limits of adult hearing thresholds, but latencies of comparable EEG waves are longer in neonates." Aspects of the method, the results, and their application are discussed. A four-point Summary is included.

326. Engel, Rolf R., and Elin, Ronald J.: "Hypermagnesemia from Birth Asphyxia," *Journal of Pediatrics*, 77:631-637, Oct., 1970.

The magnesium concentration of 95 placentas from mothers in the collaborative study for cerebral palsy, many of whom had babies with low Apgar scores, was correlated with given "clinical indicators of birth asphyxia." A significant inverse relation was revealed between plasma Mg concentration and Apgar score.

Other indicators of birth asphyxia were also related to higher plasma Mg concentrations. Relations found between the clinical indicators and K+, Na+, and Ca+ in the blood are also reported. When 18 newborn dogs were exposed to acute anoxia, "the mean plasma Mg concentration was 50 per cent above the control level" and the average plasma K+ concentration increased by 30 per cent."

327. Engel, Rolf R.; Rodkey, F. Lee; and Krill, Carl E., Jr.: "Carboxyhemoglobin Levels as an Index of Hemolysis," *Pediatrics*, 47:723-730, Apr., 1971.

Higher carboxyhemoglobin levels were always found in 37 children with hemolytic disease than in matched control siblings or nonsmoking adults. The analytical method used, the four groups of subjects in the study, and the results are described in detail, and the value of the method used as "a qualitative index of increased endogeneous CO production" is discussed.

328. Engel, Rose: "An Elixir for Early Childhood Education," *Academic Therapy*, 5:215-217, Spring, 1970.

A new product, used with handicapped children and found to be very effective in the stimulation of creativity, is described. These "little pillow-like devices" "are filled with heavy crystals, made of several different formulas, and are devised to be tactually interesting." "They can be crushed, squeezed, and they are relatively indestructible. The filling is nontoxic and harmless." Use with handicapped children is discussed and pictured.

329. Engel, Rudolf, and Butler, Bruce V.: "Appraisal of Conceptual Age of Newborn Infants by Electroencephalographic Methods," *Journal of Pediatrics*, 63:386-393, Sept., 1963.

To evaluate the electroencephalographic method of estimating conceptual age, the latencies of photically evoked responses in 666 neonates with conceptual ages of from 29 to 46 weeks were determined and studied. Ninety of the infants "had abnormal EEG's and/or evidence of neonatal stress as measured by Apgar scoring." Methods, equipment, and findings in the premature, the full-term, and the postmature infants are described. The latency measurements of the infants having "abnormal conditions" were not found to differ significantly from the other infants. Although there were individual differences, a definite inverse correlation between latency and conceptual age was revealed.

330. Epstein, Ben: "The Management of Cardiac Arrest," *Developmental Medicine and Child Neurology*, 5:632-634, Dec., 1963.

Four cases are briefly presented to show the possible unfavorable cerebral after-effects of resuscitation following cardiac arrest in children. Steps to be taken in cases of cardiac arrest to reduce the possibility of brain damage are listed.

331. Erickson, Marilyn T.: "Risk Factors Associated with Complications of Pregnancy, Labor, and Delivery," *American Journal of Obstetrics and Gynecology*, 111:658-662, Nov. 1, 1971.

Fifteen listed complications of pregnancy, labor, and delivery were selected as described, and their occurrence was determined in a randomly selected sample of 730 private obstetric patients. "The results of the study described quantitatively the risk that women would have a second complication, given that one had already occurred in comparison to the incidence of the second complication for the entire group. Ten of the 13 maternal complications were found to be associated with an increased risk of low neonatal Apgar ratings." Implications are considered.

332. Ernhart, Claire B.; Graham, Frances K.; Eichman, Peter L.; Marshall, John M.; and Thurston, Don: "Brain Injury in the Preschool Child: Some Developmental Considerations. II. Comparison of Brain Injured and Normal Children," *Psychological Monographs*, Vol. 77, No. 11, 1963. Pp 17-33.

Using the procedures described in Part I to measure the four areas of development in preschool age children, the test performance of normal preschool children was compared to the performance of 70 preschool age children having definite evidence of brain injury and having a Stanford-Binet I.Q. of over 50. These brain-injured children were classified into four described groups according to the etiology of their brain injury. The findings showed the brain-injured children to be "significantly inferior to normal children in all areas measured," but not to an equal extent. Personality functioning in the brain-injured children was significantly less impaired than were the nonpersonality areas. Other findings are listed in the "Summary", and "it was suggested that there are systematic differences in the effects of injury depending upon age at the time of injury."

333. Esmond, William G.: "Assisted Walking Brace for a Cerebral Palsied Child," *Archives of Physical Medicine and Rehabilitation*, 44:463-465, Aug., 1963.

Described and pictured is a brace designed to enable a young cerebral palsied child to be assisted in walking by an adult who guides the movements of the child. Successful physical and mental results of its usage are presented.

334. "An Exploratory and Analytical Survey of Therapeutic Exercise--Proceedings," *American Journal of Physical Medicine*, Vol. 46, No. 1, Feb., 1967. 1191 pp.

Contained in this issue of the above periodical are the papers presented and the discussions conducted at a four week conference on the above subject held at Northwestern University Medical School, Chicago, from July 25 to August 19, 1966. After an introductory section on which the project and its objectives are described, the papers of the conference are presented in four parts. Part I contains those papers that contain "Basic Information." Part II is devoted to educational aspects. Part III is most pertinent to this bibliography in that the papers deal with various methods of "Therapeutic Exercise," including the Bobath method, the Brunstrom method, neuromuscular reflex therapy, neuromuscular facilitation, the Rood approach, etc. Part IV is entitled "Patterns of Communication and Progress" and in a fifth Part are listed "Committees and Participants." Bibliographies follow the papers.

335. Farr, V.; Kerridge, D.F.; and Mitchell, R.G.: "The Value of Some External Characteristics in the Assessment of Gestational Age at Birth," *Developmental Medicine and Child Neurology*, 8:657-660, Dec., 1966.

Described in this second article on the subject is a subsequent trial in which 12 previously defined external characteristics, found to be of value in estimating gestational age, were measured using a previously presented scoring system (Farr, et. al., Oct., 1966) by one examiner in 272 singleton newborns having had various lengths of gestation. The procedures are explained. "A total maturity score" was determined for these infants by adding the scores on 11 of these characteristics, and this 'maturity score' was found to predict gestational age with considerably greater accuracy than did weight at birth." Statistical information is included.

336. Farr, V.; Mitchell, R.G.; Neligan, G.A.; and Parkin, J.M.: "The Definition of Some External Characteristics Used in the Assessment of Gestational Age in the Newborn Infant," *Developmental Medicine and Child Neurology*, 8:507-511, Oct., 1966.

Methods commonly used to estimate the gestational age of infants are reviewed. A study of two pediatric departments was conducted to clearly define some external characteristics of the newborn that have been found to be of use in estimating gestational age, to study the degree of observer agreement possible with respect to these characteristics, and to assess the degree to which these characteristics actually correlate with gestational age. Described are the definitions of 12 external characteristics to be observed, the scoring system used in observing, and the results of a "preliminary inter-observer trial" and a second trial. In the second trial when "21 babies of widely differing gestational ages were examined" 10 of the 12 characteristics were found to be worthy of further study on the basis of the degree of correlation in scoring among the observers.

337. Farr, Valerie: "An Assessment of the Value of Fetal Scalp Blood Sampling," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 77:294-300, Apr., 1970.

Fetal scalp blood sampling was assessed with regard to its value in the reduction of perinatal mortality, birth asphyxia, and Cesarean section rate. Two thousand six hundred thirty-eight patients, who were delivered in the hospital in Aberdeen, Scotland in 1966, were retrospectively studied. Conclusions with regard to the value in each condition are presented.

338. Farr, Valerie: "Estimation of Gestational Age by Neurological Assessment in First Week of Life," *Archives of Disease in Childhood*, 43:353-357, June, 1968.

Eighty-two infants of known gestational age were neurologically examined at four days of age. Characteristics of the subjects and methods are described. Ten tests were found to reveal "a fairly constant change in response with increasing gestational age." The method used to derive a "reflex gestational age," based on the responses to the 10 tests, is described. The method was found to be of value in estimating gestational age. Results are compared to those of other similar studies, and the limitations of the method are mentioned.

339. Farr, Valerie: "Estimation of Gestational Age; Comparison Between Radiological Assessment and Maturity Scoring," *Biologia Neonatorum*, 12:35-40, 1968.

Length of gestation was estimated by radiological assessment and by maturity scoring in 53 infants of known gestational age for the purpose of comparing the two methods for accuracy. Methods are described. Findings showed the maturity score to be the more accurate method. Other reasons for favoring it are mentioned.

340. Farr, Valerie, and Mitchell, R.G.: "Estimation of Gestational Age in the Newborn Infant; Comparison between Birth Weight and Maturity Scoring in Infants Premature by Weight," *American Journal of Obstetrics and Gynecology*, 103:380-383, Feb. 1, 1969.

Thirty-nine "premature by weight" newborns were weighed and graded on eleven characteristics from which a "maturity score" was obtained. Gestational age was then estimated. Graphs show the results. Gestational age and maturity scoring were found to correlate better than did gestational age and birth weight. The importance of differentiating "immature" from the "more mature but poorly grown infant" because of their differing problems is noted.

341. Feldman, Roger A.: "Cytomegalovirus Infection during Pregnancy," *American Journal of Diseases of Children*, 117:517-521, May, 1969.

Six women, found in the second trimester of pregnancy to be excreting in the urine viruses characteristic of the cytomegalovirus group, were studied during and after pregnancy. Clinical features of mothers and babies are given. All mothers had full term, normal deliveries. No neurological deficits were noted in the infants at six months of age. It is noted that the exact time of the maternal infection onset was impossible to determine in these six cases and comment is made.

342. Fenichel, Gerald M.: "Abnormalities of Skeletal Muscle Maturation in Brain Damaged Children: A Histochemical Study," *Developmental Medicine and Child Neurology*, 9:419-426, Aug., 1967.

Muscle biopsy specimens from eight young children with cerebral hypotonis were examined and evaluated for the purpose of determining the state of maturation. The eight case histories and the results of each histochemical reaction are presented. Three maturational patterns were observed, and possible explanations for the maturational abnormalities are discussed. It is suggested that this technique may be useful in the determination of the relationship of cerebral factors in muscle development.

343. Fenichel, Gerald M.: "Cerebral Influence on Muscle Fiber Typing; The Effect of Fetal Immobilization," *Archives of Neurology*, 20:644-649, June, 1969.

In a previous study by the author an abnormal amount of type II muscle fibers had been found by muscle biopsy in "some children who had suffered a prenatal cerebral stress." Such fiber is predominant in early gestation but is not by term. This paper reports on a study to determine if the preponderance of type II fibers had been due to the cerebral stress or to immobility. Muscle specimens were obtained and examined from seven "infants who had been immobilized in utero, as revealed by fixed joint deformities at birth." Histochemical methods are described. Two of the infants had no CNS abnormalities and their muscle maturation was normal. Maturation was also normal in one infant with a chromosomal disorder, but the abnormal amount of type II fibers was revealed in four infants who had demonstrated evidence of brain dysfunction. Conclusions are drawn, and it is suggested that "muscle histochemistry may be a useful technique in the diagnosis of early intrauterine cerebral distress."

344. Fenichel, Gerald M.: "Histochemical Studies of the Embryology of Muscle with Particular Reference to Cerebral Hypotonia," *Clinical Proceedings of Children's Hospital of the District of Columbia*, 22:302-306, Nov., 1966.

"Cerebral hypotonia" is discussed. The development of fetal muscle, the muscle patterns in cerebral hypotonia, and possible explanations for these patterns are described.

345. Fenichel, Gerald M.: "The Neurological Disorders of Children," *Clinical Proceedings of Children's Hospital of the District of Columbia*, 27:67-73, Mar., 1971.

"Three etiological mechanisms of brain damage in children" are discussed. These are genetic defects, chromosomal disorders, and infectious disorders.

346. Fenichel, Gerald M.: "Neurology Grand Rounds: Electromyography," *Clinical Proceedings of the Children's Hospital of the District of Columbia*, 22:252-256, Oct., 1965.

Electromyography is defined and its uses are identified. The four "diagnostic phases" of an electromyographic study are individually discussed. These are "1) insertional activity, 2) resting potentials, 3) minimal voluntary contraction, and 4) maximal voluntary contraction." Also considered is the study of nerve conduction velocity and its use as a supplement to electromyography.

347. Ferreira, Antonio J.: *Prenatal Environment*. Springfield, Illinois: C.C. Thomas, 1969. 215 pp. (American Lecture Series, No. 750.)

In the first two chapters of this volume, beliefs concerning prenatal influences are historically and ethnographically reviewed. The subject of Chapter 3 is the "Physiology of the Pregnancy." Then considered in separate chapters are the general, physical, chemical, metabolic, infectious, immunological, and emotional factors "that may contribute to alter an otherwise normal prenatal environment." The influence on the fetus of the interaction of all genetic and environmental factors is emphasized. "Conclusions" are presented. An extensive bibliography follows the text.

348. "Fetus Not Necessarily At Risk From Placental Cytomegalovirus," *Pediatric News*, 5:11:52, Nov., 1971.

A case that was reported by Drs. Kathleen Hayes and Halina Gibas of the Royal Children's Hospital Research Foundation in Melbourne, Australia is described. It indicated that "placental cytomegalovirus infection can apparently occur in association with primary maternal infection without involving the fetus." It was felt by these doctors "that similar studies are needed to define fetal risk and determine whether the hazard differs depending upon the stage of pregnancy in which the mother is infected."

349. Fields, William S., and Desmond, Murdina M., comps. and eds. *Disorders of the Developing Nervous System.* [Proceedings of the] Eighth Annual Scientific Meeting of the Houston Neurological Society, Texas Medical Center, Houston, Texas (March, 1960).

The papers and discussions of the above meeting are included in this volume. The two main topics of concern were the prenatal and perinatal factors relating to neurologic disease and the pathogenesis and treatment of hydrocephalus. Eight papers are presented under the first topic; ten under the second. Bibliographies follow the papers.

350. Finch, Stuart M.: "Personality Development in the Physically Handicapped Child," *Clinical Pediatrics*, 6:171-172, March, 1967.

Discussed in this article are the reactions of parents upon becoming aware of their child's handicap, parental discipline of a handicapped child, and the problem of peer relationships with a handicapped child.

351. Finn, Ronald: "Recent Advances in Rh Isoimmunization Prevention," *British Medical Journal*, 2:219-220, Apr. 25, 1970.

Historical aspects are reviewed, and the process of preventing Rh sensitization by the administration of Rh immunoglobulin is explained. Failure rates and supply problems with this preventive method are considered.

352. Finnerty, Frank A., Jr., and Bapko, Frank J., Jr.: "Lowering the Perinatal Mortality and the Prematurity Rate; The Value of Prophylactic Thiazides in Juveniles," *Journal of the American Medical Association*, 195:429-432, Feb. 7, 1966.

A study is presented in which the incidences of toxemia, perinatal mortality, and prematurity were compared in 1,340 normal juvenile pregnant girls "who received thiazides prophylactically" and in 1,743 normal pregnant girls "who did not receive thiazides." The rationale behind the study, the methods, and the results are given. "It is concluded that the prophylactic use of thiazides not only protects the mother from toxemia but also significantly reduces perinatal mortality and prematurity."

353. Finnie, Nancie R.: *Handling the Young Cerebral Palsied Child at Home.* Edited by Una Haynes. Sketches by Sarah Hobson. New York: E.P. Dutton, 1970, 224 pp.

This book is designed to guide parents of young cerebral palsied children in solving the most common difficulties encountered in the handling and training of their child at home. After giving some general advice, Miss Finnie describes in words and illustrates the abnormal postures and movements of the cerebral palsied child, as compared to the normal. The bulk of the volume is devoted to giving detailed suggestions to parents to aid them in training their child in various aspects of daily living. Specific chapters deal with carrying, bathing, toilet training, dressing, feeding, sleeping, and play. A sample questionnaire is included to help parents assess the particular disabilities of their child. Also included is a glossary of terms, a list of suppliers of accessories and equipment, and a short reading list.

354. Finnstrom, Orvar: "Studies on Maturity in Newborn Infants. I. Birth Weight, Crown-Heel Length, Head Circumference and Skull Diameters in Relation to Gestational Age," *Acta Paediatrics Scandinavica*, 60:685-694, Nov., 1971. (Series: For III see #355.)

The need for an accurate estimation of the maturity of the newborn is noted. The five anthropometric measurements of birth weight, crown-heel length, head circumference, occipito-frontal diameter, and bi-parietal diameter were determined in 174 neonates of various gestational age. This group of infants contained a large proportion of preterm and small-for-gestational age infants. Materials, methods, including statistical methods, and results are described in detail. Although all correlations were statistically significant, the highest correlation with gestational age was for head circumference. "Birth weight and crown-heel length had the same degree of correlation to gestational age. The two skull diameters showed significantly lower correlations to gestational age."

355. Finnström, Orvar: "Studies on Maturity in Newborn Infants. III. Neurological Examination," *Neuropadiatrie*, 3:72-96, July, 1971. (Series: For I see #354.)

Presented are the methods used and the results obtained when the following aims were implemented in a study: "(1) To evaluate a number of neurological tests and to develop a simple standardized technique for neurological maturity examination in the newborn period. (2) To evaluate this method statistically and to establish confidence limits for estimation of gestational age by means of neurological examination. (3) To study neurological maturity in small-for-gestational-age infants. (4) To study the effect of certain pathological perinatal conditions on neurological maturation. (5) To study neurological maturation in pre-term infants by repeated examinations."

356. Fiorentino, Mary R.: *Reflex Testing Methods for Evaluation of C.N.S. Development.* Foreword by Burr H. Curtis. Springfield, Illinois: C.C. Thomas, 1963. 58 pp. (American Lecture Series Pub. No. 543.)

Presented in this manual is a neurophysiological approach to the evaluation of C.N.S. dysfunction. Test positions and normal and abnormal responses in each of the four levels of reflexive maturation of the C.N.S. are pictured and explained. The approximate normal age level for the reflexsive response is given for each test. In this method the values of early evaluation, early diagnosis, and early initiation of treatment are emphasized.

357. Fiori, Renato M., and Scanlon, John W.: "Erythrocyte Levels of 2, 3-Diphosphoglycerate in the Syndrome of Fetal Malnutrition," *American Journal of Obstetrics and Gynecology*, 111:681-686, Nov. 1, 1971.

Erythrocyte 2, 3-diphosphoglycerate levels were determined as described in the blood of 8 neonates having fetal malnutrition as described (Group 1), 5 neonates who were severely depressed but not malnourished at birth and who had low Apgar scores (Group 2), and 7 normal control neonates (Group 3). Clinical data on Groups 1 and 2 are presented as are findings. Values were found to be significantly lower in the Group 1 infants than in either the Group 2 or 3 infants. Implications are discussed. "Since acidosis is known to produce a slow fall in red cell 2, 3-DPG concentration in newborn infants, these lowered levels in malnourished infants might be an expression of prolonged acidosis in utero."

358. Fisch, L., and Back, D.E.: "The Assessment of Hearing in Young Cerebral Palsied Children," *Cerebral Palsy Bulletin*, 3:145-156, 1961.

In order to determine the specific difficulties involved and the amount of time "required to arrive at a final conclusion about the hearing of these children," the hearing of 76 cerebral palsied children below the age of 7 years were tested. The ages, types of cerebral palsy, and IQ's of the children are presented. Methods of testing the hearing in physically normal young children, the problems involved in doing so with cerebral palsied young children, and some ways to combat these problems are described. Results are presented with respect to the testing, the number of sessions required to assess the hearing by any test and related to mental ability, and the ability and time required for such children to complete an audiogram. Suggestions for improving audiometric procedures are made.

359. Fisch, Robert O.; Gravem, Howard J.; and Engel, Rolf R.: "Neurological Status of Survivors of Neonatal Respiratory Distress Syndrome; A Preliminary Report from the Collaborative Study," *Journal of Pediatrics*, 73:395-403, Sept., 1968.

The methods and results from a prospective study involving 34,792 live-born babies, of whom 59 had survived the respiratory distress syndrome, are reported and discussed. The group was divided into three categories on the basis of birthweight, and all children were regularly examined. Within each of the three categories, comparisons were made between those infants who had RDS and those who had not with regard to gestational age, condition at birth, neurological findings at birth and at four months of age, mental and motor development at age eight months, and neurological abnormalities at age one year. "Neurological abnormalities were more frequent during the first year of life in the survivors of the respiratory distress syndrome than in the control subjects for each of the birthweight categories."

360. Fisher, Elbert L.: "Prognosis in Fetal Distress," *Obstetrics and Gynecology*, 24:757-759, Nov., 1964.

The infants from 11,001 term vertex deliveries were given one-minute Apgar scores and divided into four groups according to the occurrence of fetal distress signs. While 4.10% of the control group "fell in the lower half of the scale," 7.96% of the infants with "meconium staining of the amniotic fluid," 16.84% of the infants having "fetal heart rates below 100 per minute during labor," and 30.50% of the infants with both of the above conditions had Apgar scores in the 0-5 range. "It would appear possible that many of the distressed infants who survive may have sustained permanent brain damage."

361. Fisichelli, Vincent R., and Karelitz, Samuel: "The Cry Latencies of Normal Infants and Those with Brain Damage," *Journal of Pediatrics*, 62:724-734, May, 1963.

A standardized procedure is described whereby cry latencies, as defined, were determined for 117 normal infants and for "69 infants who were suffering from brain disorders." Forty-four in the latter group were matched by age and sex with 44 from the normal group. Much data is presented in tables, and the principle findings are listed in the "Summary." A much greater proportion of the abnormal subjects "gave no response at all to the first stimulus." When they did respond, the abnormal matched infants took significantly more time to do so than did the matched normal infants.

362. Floyd, William S.; Goodman, Paul A.; and Wilson, Arlene: "Amniotic Fluid Filtration and Cytology," *Obstetrics and Gynecology*, 34:583-591, Oct., 1969.

Amniotic fluid specimens were obtained and analyzed by described means in fifty-three women during the last half of pregnancy "in order to define the cell types more precisely and evaluate possible trends with increasing fetal maturity." Five categories of epidermoid cells were derived and are presented and illustrated. Changes seen in the cell population that accompanied fetal maturation, that occurred during labor, and that were seen in cases of fetal death are described.

363. Foley, J.; Cookson, M.; and Zappella, M.: "The Placing and Supporting Reactions in Cerebral Palsy," *Journal of Mental Deficiency Research*, 8:17-24, June, 1964.

The records of 159 cerebral palsied children under the age of five years were studied to determine the relationship between placing and supporting reactions and level of intelligence. "All had been examined physically and psychologically on several occasions" as described. "One hundred thirty cases were diagnosed as having spastic diplegia or quadriplegia, and 29 cases had athetosis. A correlation exists in the former group between presence of the placing reactions and an I.Q. above 40, and it has been found that in certain cases the placing reaction may be preserved despite severe spastic paresis."

364. Foley, John: "Deterioration in the EEG in Children with Cerebral Palsy," *Developmental Medicine and Child Neurology*, 10:287-301, June, 1968.

Changes observed in 498 serial EEGs in 165 cases of cerebral palsy were studied. A tendency toward "deterioration" in the EEGs was found. Results of correlations between the EEGs and epilepsy, intelligence, and physical disability are presented and discussed. It is concluded that EEGs must be interpreted with caution and used only with other clinical evidence in cases of chronic or non-progressive brain damage.

365. Foley, John: "The Treatment of Cerebral Palsy and Allied Disorders in the Young Child," in *Physical Medicine in Paediatrics*, edited by Basil Kiernander. London: Butterworth, 1965. pp. 122-151.

After presenting a general introduction to the subject of cerebral palsy, Dr. Foley describes the aims of treatment in young cerebral palsied children. Treatment processes should take into account the drives and needs of the young handicapped child. The techniques of treatment are described as they relate to each of the primary motor disabilities seen in cerebral palsy. Discussed are the disabilities of and treatment for paresis, hypertonus, "failure of suppression of brain-stem reflexes," postural fixation disorders, cortical motor reflex disorders, and involuntary movements. Comments are made on the management of various allied defects such as hearing and visual deficiencies, feeding problems, speech disorders, epilepsy, and others.

366. Footh, Wilma K., and Kogan, Kate L.: "Measuring the Effectiveness of Physical Therapy in the Treatment of Cerebral Palsy," *Journal of the American Physical Therapy Association*, 43:867-873, Dec., 1963.

A project, designed to measure the effectiveness of the physical therapy program at the Spastic Children's Clinic and Preschool in Seattle, is presented. The project consisted of two main tasks. The first was to develop "a measuring instrument," and the second was to apply this instrument in assessing the program at this Center. The Preschool Functional Activity Test was devised and is described in detail. Activities are measured and scored in four broad areas. This test was found to have high reliability in a pilot study. The variables examined are listed, and the results of administering the test at yearly intervals to 73 children at the Spastic Children's Clinic and Preschool are reported. At the initial test those children ranged in age from 10 to 63 months. The results are discussed in relation to the variables explored.

367. Ford, F.R.: *Diseases of the Nervous System in Infancy, Childhood, and Adolescence*, 5th ed., Springfield, Illinois: C.C. Thomas, 1966. 1416 pp.

This is a standard reference in pediatric neurology. Disorders are listed under 10 chapter headings. The general form for each disorder includes a definition description of the pathological anatomy, description of clinical features, and discussions on diagnosis, prognosis, and treatment. Bibliographies are abundant throughout.

368. Forfar, J.O.: "Advances in Paediatrics," *Practitioner*, 201:575-582, Oct., 1968.

Topics pertinent to this bibliography that are discussed in this article include 'at risk' registers, fetal blood sampling and amnioscopy, and Rh hemolytic disease and its treatment and prevention.

369. Forfar, J.O.: "'At Risk' Registers," *Developmental Medicine and Child Neurology*, 10:384-395, June, 1968.

The work on and the criticisms of risk registers are reviewed. The author feels that the risk register should not be thought of as an alternative to the routine developmental examination, but that both should complement each other in the process of early diagnosis. The criteria of infant placement on risk registers developed by Oppe, by Rogers, and by Walker are individually presented.

370. Fort, Arthur T.: "Prenatal Intrusion into the Amnion," *American Journal of Obstetrics and Gynecology*, 110:432-455, June 1, 1971.

Reviewed are "the diagnostic, therapeutic, and research results of amniocentesis." Considered in detail are the circumstances in which amniocentesis may be clinically useful in diagnosis, including rhesus isoimmunization, fetal maturity estimation, cytogenic study, and steroid study. The technique of amniography is also discussed as are "treatment through amniocentesis," the "technique of amniocentesis," the color appearance of amniotic fluid under various conditions, and fetal and maternal complications resulting from amniocentesis. Separately considered are numerous "basic research uses of amniocentesis." An extensive bibliography on the subject follows.

371. Fothergill, R.J.: "The Safety of Malmstrom's Vacuum Extractor," *Developmental Medicine and Child Neurology*, 4:154-158, Apr., 1962.

This instrument, used in complicated labor, is described. Six advantages of its usage, the effects it has had on infants, and the experience of the author and others with it are considered. The method is preferred over the usage of forceps because it "appears to cause less damage at birth."

372. Fox, H.: "The Significance of Placental Infarction in Perinatal Morbidity and Mortality," *Biologia Neonatorum*, 11:87-105, 1967.

The confusion concerned with the term "placental infarction" and its etiology are discussed. The term is defined as is the lesion in the placenta considered to be an infarct. Plates are shown. Seven hundred fifteen placentae from complicated, uncomplicated, full-term, pre-term, and prolonged pregnancies were examined with methods described. In the maternal conditions of pre-eclamptic toxemia and hypertension there was an increase in incidence and extent of placental infarction. "Extensive placental infarction was associated with a high incidence of neonatal asphyxia, low birth weight and intrauterine death." Relationships are discussed.

373. Frankenburg, William K., and Dobbs, Josiah B.: "The Denver Developmental Screening Test," *Journal of Pediatrics*, 71:181-191, Aug., 1967.

The process by which the 105 items on this test were selected, the standardization procedure employed, and the results of standardization on 1,036 normal Denver children, ages two weeks to six years, are described. Also considered are the reliability and validity of this test. The DDST was designed to evaluate the development in infants and preschool-age children. Four functions are assessed: "gross motor, language, fine motor-adaptive, and personal-social."

374. Frankenburg, William K.; Goldstein, Arnold D.; and Camp, Bonnie W.: "The Revised Denver Developmental Screening Test: Its Accuracy as a Screening Instrument," *Journal of Pediatrics*, 79:988-995, Dec., 1971.

The methods and results of three separate studies concerning the reliability and the validity of the DDST are described. "The first study, entitled 'Validity,' describes the correspondence between the DDST ratings of 'normal,' 'questionable,' and 'abnormal' with developmental and intelligence quotients obtained by the use of diagnostic psychological tests. The results of this study yielded data which made it possible to devise a more accurate method for the interpretation of screening findings. The second study, entitled 'Stability,' deals with the stability of the DDST interpretations utilizing both the original and the revised method for 186 children tested twice within a one week interval. The third study, entitled 'Cross Validation,' was undertaken to recheck the revised method of interpretation in another sample of children." The validity and the test-retest stability were found to be increased by the revised interpretation of the DDST.

375. Franklin, Robert R.; Desmond, Murdina M.; Rudolph, Arnold J.; Alexander, J. Alan; and Green, Bruce Q.: "Clinical Behavior of the Newly Born. III. The Term Infant with a Low Apgar Score," *Obstetrics and Gynecology*, 23:28-36, Jan., 1964.

The clinical behavior and early course of 75 consecutive infants having low 1-minute Apgar scores and cared for in an intensive care nursery are reported. "Antepartum and intrapartum complications were numerous" and are described. Forty-three of these infants "were considered to have difficulty in transition during the first 12-24 hours of life, but 50 of the 75" appeared to be in satisfactory condition by 24 hours after delivery with this number rising to 65 of the 75 by four days after delivery. Two of the infants had severe neurologic abnormalities at 8 months and 18 months respectively.

376. Freeman, John M.: "Neonatal Seizures; Diagnosis and Management," *Journal of Pediatrics*, 77:701-708, Oct., 1970.

The relationship between neonatal seizures and underlying disease which may cause cerebral damage is stated. The terms "seizure" and "convulsion," relative to the neonate, and pathogenic aspects of neonatal seizures are discussed. Also considered are the recognition and the specific diagnosis of such seizures. In a table are listed the major causes of neonatal seizures, and these are individually discussed. Treatment and prognosis are also considered. It is of major importance that the disease causing the seizures be identified and treated. Treatment of the seizures is secondary, and methods are described. Studies reveal that although the mortality rate in infants suffering seizures is high, the major percentage of those who survive are normal.

377. Freeman, Roger D.: "Controversy Over 'Patterning' as a Treatment for Brain Damage in Children," *Journal of the American Medical Association*, 202:385-388, Oct. 30, 1967.

The methods used in treating brain damaged children at the Institute for the Achievement of Human Potential in Philadelphia, directed by Glenn Doman and Carl Delacato, are briefly presented. Nine objections to these methods "by informed professional individuals and groups" are then listed and discussed. Comment is made.

378. Friedman, Emanual A.; Niswander, Kenneth R.; Sachtleben, Marlene R.; and Naftaly, Norma: "Dysfunctional Labor. X. Immediate Results to Infant," *Obstetrics and Gynecology*, 33:776-784, June, 1969.

Perinatal outcome in 1,194 infants from the Collaborative Project was studied in relation to labor abnormality, "diagnosed by clinical and by graphic means." "The previously reported increase in morbidity and mortality associated with abnormally prolonged or dystocic labors was confirmed. Differential prognostication was found to be feasible according to presenting graphic pattern of progressive dilatation and descent."

379. Frischknecht, W.: "The Social Aspects of Cerebral Palsy; Prevention and Rehabilitation in Switzerland with Special Consideration of Prematurity," *Developmental Medicine and Child Neurology*, 4:534-536, Oct., 1962.

Methods used in Switzerland to aid in the early diagnosis of cerebral palsy are described. The importance of prematurity in the etiology of cerebral palsy is reported, and three ways to reduce the incidence of prematurity, and therefore cerebral palsy, are listed. These include "organized and intensive" prenatal care, adequate rest for every pregnant woman, and prenatal admission to the hospital of women having complicated pregnancies. The need for interdisciplinary cooperation in prevention is stressed.

380. Frost, Harold M.: "Surgical Treatment of Spastic Equinus in Cerebral Palsy," *Archives of Physical Medicine and Rehabilitation*, 52:270-275, June, 1971.

Spastic equinus is defined, and its natural history, its adverse effects, and its differential diagnosis are explained. Past treatment is reviewed, including passive stretching, bracing, and the use of night splints. The author then describes his successful use of a subcutaneous technique of heel cord lengthening. Indications, recurrences, weaknesses and benefits of the method are considered. Three to five years of age is suggested as the "optimum age" for the employment of the technique. "The procedure makes the subsequent use of stretching, braces, and night splints to control this condition unnecessary; prevents serious disturbances of the growth of the ankle and foot-joint complexes; and markedly reduces the incidence of the development of accompanying spastic rocker-bottom foot or fixed-heel varus-forefoot adduction deformities."

381. Fuldner, Russell V.: "Lower Extremity Bracing in Cerebral Palsy," *Cerebral Palsy Bulletin*, 3:34-38, 1961.

Principles employed in the neurophysiological approaches to treatment, such as the methods of Fay and Kabat, are presented. These include "inhibition," "facilitation," "integration of associated movements," and "attainment of balance." The author then demonstrates how these principles relate to the therapeutic technique of bracing of the lower extremities in cerebral palsy. The fact that bracing is an adjunct in treatment and not a system of treatment is stressed.

382. Galloway, R.K.: "Clinical Experience with Fetal Blood pH Measurement in Fetal Distress," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 77:587-590, July, 1970.

The pH of fetal blood was estimated in 100 patients showing clinical signs of fetal distress in the first stage of labor. The patients were divided into two groups: in one (31 cases) the time period between sampling and delivery was over three hours, and in the other (69 cases) it was less. In the first group there was "no correlation between pH and Apgar score" while in the second group there was. Thus, "the importance of the length of time between sampling and delivery on the accuracy of prediction of the fetal state is demonstrated." The complications that occurred are presented.

383. Gartner, Lawrence M.; Snyder, Richard N.; Chabon, Robert S.; and Bernstein, Jay: "Kernicterus: High Incidence in Premature Infants with Low Serum Bilirubin Concentrations," *Pediatrics*, 45:906-917, June, 1970.

Over a two year period, autopsies were performed on 14 low birth weight infants who had died between the third and sixth days of life. Of these 14, nine "were found to have pathologic evidence of kernicterus." None had clinical signs. Clinical and pathological data are presented on the nine infants with kernicterus and the five infants without kernicterus. "Peak total serum bilirubin concentrations ranged from 9.4 to 15.6 mg/100 ml in the kernicteric groups and from 8.8 to 17.2 mg/100 ml in the group without kernicterus." Implications of the findings are considered. "These observations raise questions regarding relative roles of anoxia and plasma protein binding capacity for bilirubin in the etiology of kernicterus. The latter, in particular, needs more vigorous clinical study and may provide an approach to clinical therapy."

384. Gater, V., and Shikor, N.: "Automatic Visual Pursuit in Infants Born Normally and in Asphyxia," *Developmental Medicine and Child Neurology*, 11:595-600, Oct., 1969.

A study was conducted to investigate the "automatic visual pursuit reflex" (Bater, 1966, 1968) in normally born infants and in infants born asphyxiated for the purpose of establishing whether asphyxia causes any retardation of this reflex. In normally born infants this reflex appeared in the middle of the third month and tended to disappear one month later. Infants of low birth weight were found to develop the reflex later than did infants of normal birth weight. The reflex disappeared later in asphyxiated infants. Normal values are given for the appearance and disappearance of the reflex. It is suggested that the reflex may be a reliable indicator of developmental retardation in the second trimester of life.

385. Gentz, Johan; Persson, Bengt; and Zetterstrom, Rolf: "On the Diagnosis of Symptomatic Neonatal Hypoglycemia," *Acta Paediatrica Scandinavica*, 58:449-459, Sept., 1969.

Eighteen hypoglycemic infants, of whom 12 were diagnosed as being symptomatic and six as asymptomatic, were studied. "All infants with asymptomatic hypoglycemia were small for gestational age whereas the symptomatic group were heterogenous from a clinical point of view." Before treatment with continuous glucose infusion and hydrocortisone or human growth hormone was initiated, "the disappearance rate of intravenously administered glucose (K_G-value)" was found to be high in all symptomatic infants while the K_G-values in the asymptomatic infants were normal. The infants were followed as described between the ages of 5 months to 2 years. "Two out of the 12 infants in the symptomatic group were found to have severe cerebral damage," but all of the asymptomatic group were normal. "Determination of the disappearance rate of intravenously administered glucose, primarily given as a diagnostic test, may differentiate between symptomatic and asymptomatic hypoglycemia. If in a doubtful case the K_G-value is normal, the likely diagnosis is asymptomatic hypoglycemia. In cases of symptomatic neonatal hypoglycemia, repeated determinations of the K_G-value may provide a sensitive guide as to the effect of treatment."

386. Gevers, R.H., and Ruys, J.H., eds. *Physiology and Pathology in the Perinatal Period*. New York: Springer-Verlag. 1971. 199 pp.

Contained within are the proceedings of the Boerhaave Courses which were organized by the faculty of medicine at the University of Leiden in the Netherlands. Among the papers included are those dealing with the following topics: "Foetal Heartmonitoring and Biochemical Examination of the Child during Labour," "Iatrogenic Fetal Hypoxia," "The Influence of Anesthetic Drugs on the Foetus and Newborn," "The Influence of Anesthesia on the Acid-Base Values of Mother and Child," "Treatment of Asphyxia of the Newborn," and "The Incidence and Treatment of Hypoglycemia in the Newborn."

387. Gibbs, Frederic A.; Gibbs, Erna L.; Perlstein, Meyer A.; and Rich, Catherine L.: "Electroencephalographic and Clinical Aspects of Cerebral Palsy," *Pediatrics*, 32:73-84, July, 1963.

Two thousand one-hundred and twenty-four consecutive cerebral palsy cases were studied "to determine the extent to which the electroencephalogram correlates with the outstanding clinical features of cerebral palsy." Individually considered are the relationships between the electroencephalograms of these cases and the factors of age, etiology, motor manifestations, epilepsy, and mental retardation. Also described is the value of the electroencephalogram as a "guide to treatment." It is concluded that the electroencephalogram does not indicate as clearly the disorders in which the cerebral neurons have been destroyed, such as the motor disabilities of cerebral palsy and the often accompanying mental retardation, as it does the disorders in which the cerebral neurons have been damaged but still survive, as in epilepsy. "In combination with other parameters (electroencephalography) is useful for diagnosis and prognosis and as a guide to treatment."

388. Gibbs, Frederic A.; Gibbs, Erna L.; Perlstein, Meyer A.; and Rich, Catherine L.: "Electroencephalographic Prediction of Epilepsy as a Complication of Cerebral Palsy," *Neurology*, 13:143-145, Feb., 1963.

Repeat electroencephalograms were obtained from 324 cerebral palsied children who had no history of seizures to determine the predictive value of the electroencephalogram in regard to epilepsy in children with cerebral palsy. The majority of the children were initially studied at three years of age or younger. A normal electroencephalogram was found to be of less predictive value under the age of two years than it is after the age of two when it "is an almost perfect guarantee against epilepsy." "The finding of negative spikes at any age creates an approximately 50% chance that a cerebral palsied child who has not previously had convulsive seizures will develop them later," but "children with spikes before the age of two years are more likely to develop seizures than those who have spikes after the age of two years."

389. Gillette, Harriet E.: "Kinesiology of Cerebral Palsy," *Clinical Orthopaedics and Related Research*, 47:31-48, July-Aug., 1966.

After defining terms and describing the various reflex patterns and their development in the normal and in the cerebral palsied child, the author explains individually the characteristics of spasticity, dyskinesia and ataxia and analyzes the patterns of gait in these three types of cerebral palsy. Methods to modify these patterns are presented. These methods include exercise, bracing, and surgery.

390. Gillette, Harriet E.: *Systems of Therapy in Cerebral Palsy*. Springfield, Illinois: Charles C. Thomas, 1969. 78 pp. (American Lecture Series, No. 762.)

The text of this book is presented in two parts. In Part I, the basic mechanisms of motion, upon which therapeutic techniques are based are briefly described. Disorders of movement found in cerebral palsy are considered, and the sequences of motor development in the spastic and in the dyskinetic are outlined. In Part II, the principles and procedures of the major systems of therapy used in cerebral palsy treatment are reviewed.

391. Giunta, Frank: "A 1-Year Experience with Phototherapy for Jaundice of Prematurity," *Pediatrics*, 47:123-125, Jan., 1971.

The lighting equipment used in the intensive care unit for prematures at the Providence Lying-In Hospital is pictured and described. "When premature babies were exposed from birth to environmental lighting of 90 footcandles and placed under 'daylight' illumination of 500 footcandles, if the indirect bilirubin approached or rose above 10 mg/100 ml., serum bilirubin was maintained at less than 12 mg/100 in all but 3.1% compared with 27.5% in a control group treated from birth and for six days only under environmental (90 footcandles) lighting. The difference is statistically very highly significant; and this management of jaundice avoided exposing over 80% of our prematures unnecessarily to high-intensity illumination."

392. Giunta, Frank, and Rath, Jogeswor: "Effect of Environmental Illumination in Prevention of Hyperbilirubinemia of Prematurity," *Pediatrics*, 44:162-167, Aug., 1969.

A group of 96 babies who had birth weights of under 2500 grams at Providence Lying-In Hospital were studied. From shortly after birth until age 6 days, 47 of these infants wore only diapers "under environmental lights averaging 90 footcandles" while the other 49 infants were clothed "under lights averaging 10 footcandles." Treatment of the infants, lighting fixtures, comparative data on the two groups, and results for the six day period are described. " A significant lower serum bilirubin occurred in the light group from the second to the

393. Glaser, Gilbert H., and Levy, Lewis L.: "Photic Following in the EEG of the Newborn," *American Journal of Diseases of Children*, 109:333-337, Apr., 1965.

Photic "following" in the EEG was studied in a group of 350 full-term newborns of whom 290 were considered to be "normal" and 60 "stressed." The infants were grouped according to age and weight. The method of obtaining the recordings and the type of visual stimulus used are described. Results are reported and analyzed. The "following" response appeared in only 20 of the 60 "stressed" infants.

394. Goff, Barbara: "Appropriate Afferent Stimulation," *Physiotherapy*, 55:9-17, Jan. 10, 1969.

The theory and techniques of Miss Margaret Rood are explained in brief. The physiological basis of her views are summarized and "specific examples of" her techniques are presented. Several tables of Miss Rood are included. She "divides disability of the neuromuscular system broadly into three groups: (1) hypokinesia, (2) hyperkinesia, (3) hypertonia." These are defined and stimuli to be used with each of these syndromes are suggested.

395. Gold, Arnold P., and Carter, Sidney: "Cerebral Palsy" in *Current Therapy 1969*, edited by Howard F. Conn. Philadelphia: W.B. Saunders, 1969. pp. 669-678.

Features included in this discussion of the treatment of cerebral palsy are the aims of treatment, the role of the parent, therapeutic principles and methods used in treating the motor deficit, and treatment of the various associated disorders.

396. Gold, Edwin, and Stone, Martin L.: "Total Maternal and Infant Care; A Realistic Appraisal," *American Journal of Public Health*, 58:1219-1229, July, 1968.

The need to reduce infant mortality and morbidity in the United States is discussed, and facts which would aid in such a reduction are presented. Then described is a program of "total maturity and infant care" (MIC) developed in 1965 at the Metropolitan Hospital in New York City, which serves a deprived area, in association with New York Medical College and the New York City Department of

Health. Many of the obstetrical patients are considered to be at "high-risk" as described. The purposes of the MIC Program are listed, and the first 19 months of its operation are reviewed, including admission policies, patient care, statistical results, postpartum and family planning, infant care, patient education, staff education, nutritional services, and evaluation of the program. "While statistical proof is as yet lacking that the care tendered to mothers and infants in this program has significantly reduced infant and perinatal mortality and morbidity, it is obvious that improved organization and delivery of health services have already been achieved."

397. Goldberg, Barry B.; Isard, Harold J.; Gershon-Cohen, J.; and Ostrum, Bernard J.: "Ultrasonic Fetal Cephalometry," *Radiology*, 87:328-332, Aug., 1966.

The technique of this method to accurately measure the size of the fetal head in utero is described, and results of the clinical application of the method are presented, including the relationship found between ultrasonic cephalometry and caliper measurement, the cephalo-pelvic relationship, the serial ultrasonic measurements of fetal head growth, the relationship between ultrasonic measurement and fetal weight, and the use of the method to locate the fetal head.

398. Goldie, L., and Hopkins, I.J.: "Head Turning Towards Diffuse Light in the Neurological Examination of Newborn Infants," *Brain*, 87:665-672, Dec., 1964.

The design and results of this study conducted on 106 normal full term neonates are presented. The ability to turn the head towards illumination was found to be present in most neonates from the first day of life with the state of the infant (at the time of the test) having a large effect on the quality of response elicited. It is felt that the technique may be of value in assessing the cortical function of newborns.

399. Goldstein, Hyman: "Carisoprodol in the Treatment of Children with Motor Difficulties Due to Brain Impairment," *Archives of Pediatrics*, 78:194-199, May, 1961.

The condition of cerebral palsy is described as is a study in which carisprodol was administered as described to 72 cerebral palsied children, ages 1 1/2 to 16 years. Fifty-one untreated cerebral palsied children served as controls. Other treatment procedures were not altered. Assessment and rating procedures are explained. Favorable results are reported. "The results were judged satisfactory (good or fair) in 65 children, or 90%" of the treated group and in 78% of the untreated group. Other benefits are described, and few side effects were noted.

400. Goldstein, Robert, and Tait, Charles: "Critique of Neonatal Hearing Evaluation," *Journal of Speech and Hearing Disorders*, 36:3-18, Feb., 1971.

"A current procedure for neonatal hearing screening" is described and examined as to the results of its usage, its rationale, and its effectiveness. The "positive" and "negative" features of such a program are listed with the criticisms elaborated upon. Arguments favorable to such a program made by others are separately questioned. Alternatives to the described method are offered. Stress is placed upon the "more careful and objective evaluation of a limited number of children selected on the basis of a high-risk register" and on follow-up examinations. A recommended evaluation procedure is described, and specific suggestions concerning follow-up are made.

401. Gomez, Manual R.: "Prenatal and Neonatal Seizure Disorders," *Postgraduate Medicine*, 46:71-77, July, 1969.

Evidence is presented concerning the existence of prenatal seizures. The characteristics, the etiology, the prognosis, and the treatment of neonatal seizures are discussed with emphasis placed on etiology. Many "causes of neonatal seizures" are listed in a chart and are discussed within six categories: "metabolic disorders, toxic and electrolyte disturbances, infections, trauma at birth, congenital malformations, and those of unknown origin."

402. Goodlin, Robert C.: "Fetal Medication in High-Risk Pregnancies," *Obstetrics and Gynecology*, 34:109-112, July, 1969.

It is suggested that medication be intentionally administered to the fetus through the mother in high-risk pregnancies "well in advance of the time of fetal stress" to prevent asphyxia and to give pain relief to the fetus. Studies in both of these areas are reported. Based on studies and clinical experience, "dextrose, scopolamine (or atropine), and a barbiturate would appear to be the drugs of choice for human fetal hypoxia protection." Studies on humans are needed.

403. Goodlin, Robert C., and Fabricant, Stephen J.: "A New Fetal Scalp Electrode," *Obstetrics and Gynecology*, 35:646-647, Apr., 1970.

The description, results obtained from, and the advantages of "an inexpensive, reusable fetal scalp electrode embraced by a suction cup" are presented. The device is used to monitor fetal heart rate during labor.

404. Gordon, H., and Brosens, Ivo: "Cytology of Amniotic Fluid: A New Test for Fetal Maturity," *Obstetrics and Gynecology*, 30:652-656, Nov., 1967.

The value of estimating fetal maturity by "cytologic examination of amniotic fluid, using Nile blue sulfate staining" was assessed in a group of obstetric patients in whom fetal maturity had been confirmed, in a group of Rh isoimmunized obstetrics patients in whom fetal maturity had been confirmed, and in a group of obstetric patients in whom fetal maturity was in doubt. Findings are reported and support the value of the method as a diagnostic aid in assessing fetal maturity. Several cases are presented to illustrate "the use of the technic."

405. Gordon, Ronnie: "The Design of a Pre-School 'Learning Laboratory' in a Rehabilitation Center," *Rehabilitation Monograph*, No. 39, 1969. 61 pp.

Described are the program and the facilities of the Katherine Lilly Conroy Learning Laboratory which is part of the Institute of Rehabilitation Medicine of New York University Medical Center. The Laboratory is designed to provide education for the handicapped, preschool-age children attending the Rehabilitation Center as either inpatients or outpatients. The learning experiences offered the children are listed and ways in which these normal preschool experiences must be altered to meet the needs of handicapped preschoolers are discussed. Also considered are the "medical setting of the school" and the variety of disabilities encountered in the school's population. Cerebral palsy is the most prevalent disability. Then presented in some detail are the "basic design" of the laboratory and design of equipment, including cut-out circular work tables, sand and water tables, a carpentry bench, an easel, and an "isolation table." Numerous diagrams and photographs are presented.

406. Gorodischer, Rafael; Levy, Gerhard; Krasner, Joseph; and, Yaffe, Sumner J.: "Congenital Nonobstructive Nonhemolytic Jaundice; Effect of Phototherapy," *New England Journal of Medicine*, 282:375-377, Feb. 12, 1970.

A case is presented to show successful use of phototherapy "to reduce serum bilirubin concentration in an older infant with congenital, nonobstructive, nonhemolytic jaundice unresponsive to phenobarbital therapy."

407. Gotts, Ernest A., comp. *A Bibliography Related to Early Childhood Education, Child Development, and Preschool Handicapped Children.* Austin, Texas: University of Texas, Program for Staff Training of Exemplary Early Childhood Centers for Handicapped Children, [1971]. 179 pp. (Distinguished Staff Training Monograph Series Vol. II, No. 1.)

Presented in three parts this bibliography contains complete citations to the literature in the areas: "a) Early Childhood Education and Related Topics, b) Early Childhood Education and Handicapped Children, and c) Child Development." Each of the sections are further subdivided, and items have been cross-referenced when pertaining to more than one area. The major purpose of the bibliography "is to provide the Training Facilitator of an Exemplary Early Childhood Center with a handy resource for aiding staff in finding information which may bear on the problems of interest to them."

408. Graham, Francis K., and Berman, Phyllis W.: "Current Status of Behavior Tests for Brain Damage in Infants and Preschool Children," *American Journal of Orthopsychiatry*, 31:713-727, Oct., 1961.

Discussed in this article are: (1) "the current research issues which are of special relevance for the brain-injured child"; (2) the "criteria [that] must be met in standardizing and validating a test of brain damage and...difficulties [that] arise in attempting to apply these criteria to preschool children" and, (3) "measures [that] have been developed." A lengthy, subject-divided bibliography follows the text.

409. Graham, Frances K.; Ernhart, Claire B.; Thurston, Don; and Craft, Marguerite: "Development Three Years after Perinatal Anoxia and Other Potentially Damaging Newborn Experiences," *Psychological Monographs*, Vol. 76, No. 3, 1962. 53 pp.

Described in detail is a prospective study of a group of newborns designed to determine whether or not permanent impairment and/or "a continuum of reproductive casuality follow perinatal complications, including anoxia." Three hundred fifty-five of the newborns or 84.3% of the original sample were followed-up at age 3 years, including 159 who had been normal, full-term newborns, 116 who had been anoxic, full-term newborns, and 80 who had experienced other perinatal complications. The later two groups were further subdivided. The children were tested on a wide variety of described neurological and psychological measures, and test results of the groups were compared. Much data are presented, and 10 principle findings are listed under "Summary and Conclusions." "The anoxic group performed less well on cognitive tasks, was more likely to have suggestive or positive neurological findings, and tended to be rated unfavorably on personality characteristics. The other complicated group also performed less well than normal controls on the cognitive and neurological measures." Five children had cerebral palsy of whom one was a normal control. It was concluded that "anoxia does not appear to have an all-or-none effect."

410. Gray, O.P.; Ackerman, Ann; and, Fraser, Anne J.: "Intracranial Haemorrhage and Clotting Defects in Low-Birth-Weight Infants," *Lancet*, 1:545-548, Mar. 16, 1968.

"Thrombotest" was used shortly after birth to test the status of coagulation in 286 consecutive low birthweight infants. The group was then divided on the basis of whether thrombotest was more (212) or less (74) than 10%. These two groups were compared, as to subsequent death, death due to intracranial hemorrhage, sites of hemorrhage, and associated factors such as placental insufficiency, hypoglycemia, hypoxia, respiratory distress syndrome, and antepartum hemorrhage. "Factors which are more commonly associated with a low thrombotest are intrapartum hypoxia, wasting of the infant, and a blood-glucose of less than 20 mg. per 100 ml." Methods of treating infants with low thrombotests are discussed, and results of treatment are presented.

411. Greenberg, Robert E., and Christiansen, Robert O.: "The Critically Ill Child: Hypoglycemia," *Pediatrics*, 46:915-920, Dec., 1970.

Topics considered are "neonatal hypoglycemia," "hypoglycemia in the older infant and child," "mechanisms underlying hypoglycemia," diagnosis, and treatment. Concerning neonatal hypoglycemia, two factors are given which predispose a neonate to hypoglycemia: "(1) placental dysfunction and (2) postnatal illness."

412. Greene, John W.; Beargie, Robert A.; Clark, Barbara K.; and Smith, Kaighn: "Correlation of Estriol Excretion Patterns of Pregnant Women with Subsequent Development of Their Children," *American Journal of Obstetrics and Gynecology*, 105:730-747, Nov. 1, 1969.

Estriol determinations were obtained from a group of pregnant women at various times during pregnancy. Maternal, pregnancy, delivery, and newborn condition data is presented in a table. The 34 offspring of these women were placed in four categories, ranging from those whose mothers had had all normal estriol determinations (Category I) to those whose mothers "in whom all estriol levels were below the normal values for the corresponding gestation period" (Category IV). Several follow-up tests were administered to the children between the ages of 1 - 7 years. Test results were then related to "urinary estriol excretion patterns, the maternal pregnancy complications, infant neonatal course and socioeconomic status." No major neurological abnormalities were detected. Other defects found are discussed. It is concluded "that low estriol excretion before delivery is compatible with infant development and intelligence in the normal range." "Discussion" follows the text.

413. Greene, John W., Jr.; Duhring, John L.; and Smith, Kaighn: "Placental Function Tests; A Review of Methods Available for Assessment of the Fetoplacental Complex," *American Journal of Obstetrics and Gynecology*, 92:1030-1058, Aug. 1, 1965.

The need for "a dependable method for the assessment of the intrauterine environment" in order to reduce perinatal mortality and morbidity, including cerebral palsy, mental retardation, etc., is stated. Reviewed in this article are the numerous methods which have been proposed to accomplish this assessment. Headings under which the methods are discussed include "physical tests," "blood and serum studies," "physiologic studies," "studies of amniotic fluid," "hormonocytology," and "studies concerning the production and excretion of chorionic/gonadotropin, progesterone, and estrogen." In considering each method, the reviewers mention pertinent studies and often suggest situations where usage of the method may be applicable. A seven-page bibliography follows the text.

414. Greenman, George W.; Gabrielson, Mary O.; Howard-Flanders, June; and Wessel, Morris A.: "Thyroid Dysfunction in Pregnancy; Fetal Loss and Follow-Up Evaluation of Surviving Infants," *New England Journal of Medicine*, 267:426-431, Aug. 30, 1962.

Eighteen surviving infants of 23 women, having "known or suspected thyroid disorders," were followed "for at least 8 months." The women were divided into four groups on the basis of thyroid function and treatment, and detailed data is presented on each group. Five of the 18 infants were considered to be abnormal by the last examination. "The outcome of pregnancy was poor for the women whose serum BEI's failed to reach the normal range for pregnancy and who did not receive replacement therapy." The importance of follow-up evaluations of infants is illustrated and stressed.

415. Greer, Hugh D., and Waltz, Arthur G.: "Acute Neurologic Disorders of Infancy and Childhood," *Developmental Medicine and Child Neurology*, 7:507-517, Oct., 1965.

A study was conducted on 65 patients who had experienced in infancy or childhood an acute onset of a focal neurological disorder. Results are reported on the basis of those who had experienced fever and/or seizures at onset (Group I) and those who had not (Group II). Children in Group I were found to have had an earlier age of onset, a higher incidence of infection preceding onset, displayed more severe physical deficits, and generally had a poorer prognosis. It is suggested that the deficit in Group I may have been due to focal inflammation while the deficit in Group II may have been caused by ischemia.

416. Gregg, Grace S., and Hutchinson, Donald L.: "Developmental Characteristics of Infants Surviving Fetal Transfusion," *Journal of the American Medical Association*, 209:1059-1062, Aug. 18, 1969.

Fifteen children who had survived intrauterine transfusion were developmentally and neurologically studied between the ages of nine to 38 months. Questions to be answered by the study are listed, and examination results are presented. Although several of the children had "minor neurological abnormalities," only one was felt to be "functioning below normal." No overt cases of cerebral palsy were noted. On the basis of results it was concluded "that intrauterine transfusion, judiciously administered before serious intra-uterine damage occurs, is not intrinsically harmful to the recipient, provided that the bilirubin value (indirect) is prevented from rising above a critical level in the neonatal period."

417. Griffiths, A.D.: "Association of Hypoglycaemia with Symptoms in the Newborn." *Archives of Disease in Childhood*, 43:688-694, Dec., 1968.

One thousand consecutive infants, who had been admitted to a special care nursery, were studied to determine "the relation between hypoglycaemia symptoms, and death." One hundred and forty-eight infants had hypoglycemia as defined. There were no significant differences in the incidence of symptoms or in the death rates between the hypoglycemic infants and the non-hypoglycemic infants. When the hypoglycemic infants who subsequently died were considered, in every case except one death was attributed to a cause other than hypoglycemia. The results are compared to those from other studies, and implications are discussed.

418. Griswold, Don M., and Cavanaugh, Denis. "Prematurity - the Epidemiologic Profile of the 'High Risk' Mother," *American Journal of Obstetrics and Gynecology*, 96:878-882, Nov. 15, 1966.

At the University of Miami School of Medicine, Department of Obstetrics and Gynecology, the rate of premature births among the indigent mothers is twice that occurring in private patients. A study of the indigent group was undertaken to describe the high risk mother in this group. Five hundred fifty-one premature deliveries were compared with a like number of "mature deliveries" with respect to maternal age, race, marital status, height, weight, pregnancy weight gain, and antepartum care. Results are presented, and the most likely type of woman in this group to have a premature baby is described. It is suggested that careful study of these "high risk" women and the comparison with others in the same socio-economic class may aid in determining the etiology and prevention of prematurity.

419. Gruenwald, Peter: "Chronic Fetal Distress," *Clinical Pediatrics*, 3:141-149, Mar., 1964.

Studies by the author and his associates, from which "a broad diagrammatic concept of fetal distress was evolved," are briefly described. This diagram is presented. The terms "chronic fetal distress," "subacute fetal distress," and "acute perinatal distress" are differentiated. The effects of chronic and subacute fetal distress are described as they appear in the neonate and at autopsy. The influence of placental factors in the causation of chronic and subacute fetal distress is discussed.

420. Gruenwald, Peter: "Chronic Fetal Distress and Placental Insufficiency," *Biologia Neonatorum*, 5:217-265, 1963.

Three forms of fetal distress are differentiated: chronic, subacute, and acute. A study of 2400 consecutive deliveries, more than 4000 placentas, and autopsy material is reported. In all cases a gestational age could be estimated and only those over 28 weeks were considered. Subjects were classified on the basis of deviation from normal birth weight. Numerous tables and graphs describe the results concerning body weight, organ weights, pathological anatomy, and placental characteristics. Approximately one-third of the infants with low birth weight were not premature. Chronic fetal distress was found to be "a frequent antecedent" to morbidity and death. The underweight infants were compared to the normal with respect to weight of their organs. Brain weight was found to be "a valuable parameter in the study of normal and abnormal fetal growth." Cerebral lesions found in cases of fetal distress and pathogenic theories are described. No constant significant relationship was revealed between fetal deprivation and pathological changes in the placenta. Follow-up studies are needed to further determine relations between chronic fetal distress and the conditions of retarded physical growth and cerebral damage.

421. Gusdon, John P., Jr.; Leake, Norman H.; Prichard, Robert W.; and Rhyne, A. Leonard: "Amniotic Fluid Antibody Titers and Other Prognostic Parameters in Erythroblastosis," *American Journal of Obstetrics and Gynecology*, 108:85-90, Sept. 1, 1970.

A number of prognostic procedures, which have been used in determining amniotic fluid antibody in rhesus-sensitized patients, were studied. "The ratio of the per cent transmission at 520 mμ to that at 490 mμ, the Δ.O.D. and the amniotic fluid antibody titer 450 were found to be the most effective prognostic methods, in that order of significance." A formula, comprised of all the factors studied, was devised and is presented. This formula was found to predict outcome better than "any other combination of factors or any single factor alone." It is emphasized that this increased predictive accuracy "is true only when the fetus is D positive."

422. Hagberg, B., and Lundberg, Anita: "Dissociated Motor Development Simulating Cerebral Palsy," *Neuropadiatrie*, 1:187-199, Oct., 1969.

The term "dissociated motor development" is "defined as a condition where traditional milestones for fine motor development appeared at the expected age while gross motor skills were markedly delayed without any other obvious neurological signs." Thirty-two children having this condition were neurologically examined, as described, at a mean age of 16.5 months and were finally neurologically re-examined at a mean age of 53.2 months at which time a battery of described tests were administered. On the basis of re-examination results, the children were placed in one of five groups. Each of these is explained. "Without any treatment fifteen children had returned to normal development (12 children) or were expected to do so (3 children), and 17 patients showed various forms of persistent motor dysfunction, in the majority indicating early brain damage."

423. Hagberg, Bengt: "Emotionally Released Hyperthermia in Cerebral Palsy," *Neuropadiatrie*, 1:295-306, Feb., 1970.

Fifteen cerebral palsied children having "repeatedly occurring unexplained hyperthermia" were studied during the period 1956-1969. The patients are described as to their clinical classification, etiology, the hyperthermic episodes, other associated reactions, and prognosis. The episodes could often be associated with situations involving emotional stress, such as hospitalization, and were found to indicate unfavorable prognosis. The importance of recognizing the existence of such cases for diagnosis and proper treatment is discussed.

424. Hall, Lilly C.: "The First Year at Balvicar Centre, Glasgow," *Developmental Medicine and Child Neurology*, 10:121-128, Feb., 1968.

This is a report on the first 13 month's operation of the Balvicar Child Development Centre, opened in 1964. The aim of the centre is "to provide treatment and support for all types of medical, social and emotional disabilities and to achieve coordination of services and the best amenities for patients under five years of age." Notes are provided on the initial 113 patients referred to the Centre The use of play therapy, the Special Day Nursery, the Parent's Group, and the Centre's relations with the general practitioner, with the hospital, and with the general public are discussed.

425. Halpern, D.; Kottke, F.J.; Burrill, C.; Fiterman, C.; Popp, J.; and Palmer, S.: "Training of Control of Head Posture in Children with Cerebral Palsy," *Developmental Medicine and Child Neurology*, 12:290-305, June, 1970.

The belief is put forth that the poor head control of some cerebral palsied children may be caused not only by the "innate structure and neurophysiological organization" but also by "deficient experience." This view is elaborated. Fourteen cerebral palsied children with impaired head posture, ages 3-12 years, were studied during therapy in order to assess the roles that "diminished perception, erratic stimuli, and defective motor control" play in poor head control.

Detailed information on the children, the therapeutic techniques, and the results are given. "Responsiveness to deviations from correct head-posture was improved and maintenance of head orientation was increased with the use of dynamic head suspension."

426. Halpern, Daniel, and Meelhuysen, Frank E.: "Phenol Motor Point Block in the Management of Muscular Hypertonia," *Archives of Physical Medicine and Rehabilitation*, 47:659-664, Oct., 1966.

Methods used to control spasticity are reviewed, a method of injecting dilute phenol "into the muscle at points of greatest sensitivity to electrical stimulation" and of identifying those points is described, and the results of using the method with 20 adults and 19 cerebral palsied children are reported. "Fourteen adults and 10 children obtained a good result, six adults and six children obtained a fair result, and three children had a poor result." Results with three young spastic diplegic children were particularly encouraging. Precautions and complications are mentioned. "It is apparent that prolonged relief from excessive muscular tone or clonus may be offered by this relatively simple procedure."

427. Hamilton, E.G.: "High-Titer Anti-D Plasma for the Prevention of Rh Isoimmunization," *Obstetrics and Gynecology*, 36:331-340, Sept., 1970.

Factors involved in this treatment method are discussed including the reasons why exact dosage requirements for the individual patient are not known. Reported are the results the author has had from 1962 through 1969 when "more than 1,400 doses of high-titer anti-D plasma were given to Rh negative mothers of ABO compatible, Rh positive babies, during the first 72 hour postpartum, with no unfavorable reactions." One hundred fifty-four of these treated patients have returned, and in 174 of the 176 subsequent Rh positive pregnancies, sensitization was absent. The two failures are described. The importance of adequate dosage is mentioned.

428. Hanefeld, Folker, and Natzschka, Jurgen: "Histochemical Studies in Infant Gunn Rats with Kernicterus," *Neuropadiatrie*, 2:428-438, Apr., 1971.

The literature is reviewed. Kernicterus was experimentally produced in 21 Gunn rats. Twenty-four hours later they were decapitated, and their brains were histochemically studied for numerous listed enzymes. Results are described. It is felt that these methods could be used to "estimate the severity of bilirubin encephalopathy" and "could also be used to rest therapeutical trials for prevention of kernicterus in animal studies."

429. Hanks, Susan B., and Macfarlane, David W.: "Device for Heel-Cord Stretching and Gait Training," *Physical Therapy*, 49:380-381, Apr., 1969.

This device consists of "an inflexible aluminum plate, as long or longer than the shoe and affixed by means of a French ski binding" to the sole of the child's shoe. Methods of usage, benefits, and construction are described with the materials needed and the device itself pictured.

430. Hannaway, Paul J.: "Failure to Thrive; A Study of 100 Infants and Children," *Clinical Pediatrics*, 9:96-99, Feb., 1970.

The records of 100 infants and young children who were admitted to a Boston hospital for failure to thrive were studied. Results concerning sex, age, birth weight, family history, clinical features, physical examination, and discharge diagnosis are reported and discussed. When discharged, 51 of the cases were felt to have 'nonorganic' difficulties. Eighteen of the 49 who had organic problems "had primary central-nervous-system disease."

431. Hanshaw, James B.: "Cytomegalovirus Infection and Cerebral Dysfunction," *Hospital Practice*, 5:111-113, 117-120, Sept., 1970.

Although the incidence of cytomegalovirus infection was once considered to be rare, it is now "thought to be one of the most common of intrauterine infections" with neurological sequelae found in between 50-75% of the "infants who are symptomatic at birth" and who survive. Numerous pertinent studies are reviewed. It is hypothesized that many of the infants born with the infection may go undetected but may later develop CNS-related or extraneural abnormalities. The role of the virus in several acquired illnesses, such as "malignant disease," mononucleosis, and "chronic ulcerative lesions of the gastrointestinal tract," is discussed. Also mentioned is the difficulty involved in the differential diagnosis of CMV infection. Techniques are described, including one which may prove useful as an infantile massive screening method. Possible methods "for anti-CMV therapy" and preventive measures are briefly noted.

432. Hardy, Janet B.; McCracken, George H., Jr.; Gilkeson, Mary Ruth; and Sever, John L.: "Adverse Fetal Outcome Following Maternal Rubella After the First Trimester of Pregnancy," *Journal of the American Medical Association*, 207: 2414-2420, Mar. 31, 1969.

The pregnancy results of 24 women, who had clinical rubella after the first trimester of pregnancy, are reported. Twenty-two infants survived and were three to four years of age at the time of the article. They had been closely followed with methods given. Fifteen were thought to be abnormal. The conditions of the maternal illness; the outcome of pregnancy; lab findings in the 15 suspect cases; and physical growth, communication deficits, developmental retardation, cardiologic defects, and other deficits revealed in the children are described. It was found that, in general, the deficits present in this group were more subtle than when rubella occurs earlier in pregnancy and are thus more difficult to diagnose in infancy. Lab methods to aid in the early diagnosis are discussed.

433. Harris, Fredric A.: "Inappropriocеption: A Possible Sensory Basis for Athetoid Movements," *Physical Therapy*, 51:761-770, July, 1971.

A new theory to explain athetoid movements is presented in which such movements are accounted for by "defective sensory feedback" (inappropriocеption) rather than "in terms of central motor mechanisms." Treatment methods that would implement this theory are also considered. "The theory suggests two avenues of treatment of athetoids: 1) improve the quality of information feedback from the limbs, and 2) stabilize and support the remainder of the body while working on control of each part of the body in turn, in order to avoid continual triggering of uncontrollable movements which result when the athetoid attempts to stabilize all body segments simultaneously on his own."

434. Hausknecht, Richard U.: "Estriol and Fetal Health," *Obstetrics and Gynecology*, 30:639-645, Nov., 1967.

Estriol production in pregnancy is discussed, and facts concerning the topic that have been established through recent work are listed. The method of estriol determination used in the laboratory of the author is described, and results with several groups of patients are reported. Maternal urinary estriol levels falling below 8 mg/24 hrs were found to indicate definite risk to the fetus as did a fall of 50% or more in an individual level. It is emphasized, however, that with this latter indicator, such falls may not always be indicative of fetal jeopardy. Many factors may be involved and the "day-to-day variations" in levels are discussed. "Perhaps the chief value to be obtained from such determinations is the secure ability to leave a growing fetus undisturbed when maternal estriol levels are maintained or continue to rise in the face of maternal disease."

435. Haworth, J.C.; Coodin, Fischel J.; Finkel, K.C.; and Weidman, M.L.: "Hypoglycemia Associated with Symptoms in the Newborn Period," *Canadian Medical Association Journal*, 88:23-28, Jan. 5, 1963.

The cases of six infants are reported who developed described "symptoms on the second or third day of life associated with very low blood sugar levels." Four of the babies appeared to have recovered with no sequelae evident. "The other two showed evidence of permanent brain damage, but it is not known whether this was the cause of their symptoms or the result of the hypoglycemia." Treatment is discussed.

436. Haworth, J.C.; Dilling, Louise; and, Younoszai, M.K.: "Relation of Blood-Glucose to Haematocrit, Birthweight, and Other Body Measurements in Normal and Growth-Retarded Newborn Infants," *Lancet*, 2:901-905, Oct. 28, 1967.

Forty normal newborns were compared to 38 growth retarded newborns, as defined, with regard to blood-glucose levels, hematocrits, head size, and body length. The growth retarded group was divided into those who "were mildly growth-retarded" and those who were "severely growth-retarded." Significant differences were found between the normals and the "severely growth-retarded" infants. "It is concluded that it is the infant whose birth-weight is more than two standard deviations below the mean for his gestational age, with a proportionally large head, who is most prone to neonatal hypoglycaemia."

437. Haworth, J.C., and Ford, J.D.: "The Effect of Early and Late Feeding and Glucagon Upon Blood Sugar and Serum Bilirubin Levels of Premature Babies," *Archives of Diseases of Childhood*, 38:328-333, Aug., 1963.

Forty-four premature babies were randomly divided into three treatment groups: (1) "early fed group," (2) "glucagon group," and (3) "delayed feeding group." The groups are explained, and treatment and measurement methods are described. The infants in each group were compared with respect to hematocrit levels, blood sugar levels, indirect serum bilirubin levels, and weight loss. Results are presented in tables. No significant differences among the three groups were found with respect to blood sugar and serum bilirubin levels. "There appeared to be neither advantages or disadvantages in feeding premature infants from 4 to 6 hours of age or delayed feedings for 36 hours."

438. Haworth, J.C., and McRae, K.N.: "The Neurological and Developmental Effects of Neonatal Hypoglycemia: A Follow-Up of 22 Cases," *Canadian Medical Association Journal*, 92:861-865, Apr. 17, 1965.

Eight newborn infants with symptomatic hypoglycemia and 14 with asymptomatic hypoglycemia were followed-up at between the ages of eight to thirty months. Follow-up consisted of physical examination and evaluation on the Gesell Developmental Schedules. Procedures are described. Fourteen of the children were judged to be "normal," five were considered to be "abnormal," and three were thought to be "possibly abnormal." All of the five "abnormal" children and one of the "possibly abnormal" children were in the symptomatic group and their cases are described. "This preliminary study suggests that hypoglycemia associated with neurological symptoms in the newborn period carries a poor prognosis with respect to permanent neurological damage. Asymptomatic hypoglycemia may have a relatively good prognosis."

439. Hayden, Alice H. *Staff Training in a University Setting (With Emphasis on Behavior Modification)*. Austin, Texas: University of Texas, Program for Staff Training of Exemplary Early Childhood Centers for Handicapped Children, [1971]. 59 pp. (Staff Training Prototype Series Vol. II. No. 3.)

The staff training model of the Experimental Education Unit of the Child Development and Mental Retardation Center at the University of Washington is described in three forms. "Packet I" is a script to be used with a slide-tape set "on *Staff Training in the Model Preschool Center for Handicapped Children* at the Experimental Education Unit." "Packet II" consists of the film script from a 16 mm. motion picture film entitled, *Building Social Skills in a Preschool Child*. This film depicts "the applications of training procedures in a field setting - a demonstration Head Start classroom in Seattle's Central Area." "Packet III" consists of a script to be used with transparencies which describes "the various 'systems' or aspects of the staff training model developed at the Unit." Graphic presentations of the systems are included.

440. Hayes, Kathleen, and Gibas, Halina: "Placental Cytomegalovirus Infection Without Fetal Involvement Following Primary Infection in Pregnancy," *Journal of Pediatrics*, 79:401-405, Sept., 1971.

Reported is a case in which primary maternal cytomegalovirus infection occurred "during the second trimester of pregnancy with infection of the placenta, but sparing the fetus." Virologic methods are described. The authors believe that prospective studies of cytomegalovirus in pregnancy, such as the one in which this case was involved, "are necessary to determine the over-all risk to the fetus and to discover whether the risk varies with the stage of pregnancy at the time of maternal infection."

441. Haynes, Una. *A Developmental Approach to Casefinding with Special Reference to Cerebral Palsy, Mental Retardation and Related Disorders.* [Baltimore]: U.S. Department of Health, Education, and Welfare, Children's Bureau, 1967. (Children's Bureau Publication No. 449, 1967.)

This booklet was designed to aid nurses in the recognition of dysfunctions and anomalies in the newborn and young child. On pages 6 - 8 are listed "factors known to contribute" to perinatal mortality and morbidity. In Chapter III are detailed the criteria for appraising infants and young children. Assessment of the neurological reflexes and developmental milestones are stressed. Presented in Chapter IV are some of the possible procedures and opportunities for appraising growth and development. Also explained is a "wheel device" inserted in the back cover of the book, called "Guide to Normal Milestones of Development" to be used by nurses in recalling the basic steps in development. Assessment of the older child is considered in Chapter V. A brief "Summary," a bibliography, and appendices conclude the booklet.

442. Heimer, Caryl B.; Cutler, Rhoda; and Freedman, Alfred M.: "Neurological Sequelae of Premature Birth," *American Journal of Diseases of Children*, 108:122-133, Aug., 1964.

Presented is a study in which the relationship between prenatal and neonatal complications and neurological abnormalities in prematurely born, 2 1/2 year old children, was examined. The methods used are thoroughly described. The prenatal and neonatal complications of 319 premature infants were obtained from obstetrical records and are listed. These children and 32 full term children (controls) were neurologically and psychologically examined at age 2 1/2 years. Given are the relationships found between neurological abnormalities and prenatal complications, neonatal complications, birth weight, and sex. Nineteen and seven-tenths per cent of the premature children showed evidence of neurological abnormality at 2 1/2 years, and the lowest birth weight children had the highest incidence of abnormality. Neurological findings are presented in an appendix.

443. Hellman, Louis M.; Duffus, Gillian M.; Donald, Ian; and, Sunden, Bertil: "Safety or Diagnostic Ultrasound in Obstetrics," *Lancet*, 1:1133-1134, May 30, 1970.

The incidence of fetal abnormality was assessed in "1114 apparently normal pregnant women," who had been examined during pregnancy by a described ultrasonic method, in order to study the safety of the procedure. There was a 2.7% incidence of fetal abnormality in the group which was considered to be no more than usual. "Neither the time in gestation of the first examination nor the number of examinations seemed to increase the risk of fetal abnormality."

444. Hellmuth, Jerome, ed. *Exceptional Infant. Volume 1: The Normal Infant.* Seattle: B. Straub and J. Hellmuth, 1967. 568 pp.

This first volume in a prospective series on the exceptional infant contains 20 essays on many aspects of "normal infancy and its variations." The first contribution by Martin A. Mendelson is a description of the Collaborative Project for the Study of Cerebral Palsy, and some of the problems encountered in this type of interdisciplinary study. Other topics include the reflexology of neonates and infants and the assessment of infant development. Many articles emphasize some aspect of learning in infancy. Bibliographies follow each essay.

445. Hellstrom, B., and Kjellin, K.G.: "The Diagnostic Value of Spectrophotometry of the CSF in the Newborn Period," *Developmental Medicine and Child Neurology*, 13:789-797, Dec., 1971.

Spectrophotometric cerebro-spinal fluid examinations were performed as described in 117 neonates who showed evidence of having clinical abnormalities, and "the diagnostic significance of xanthochromia of the CSF" was studied. The five clinical groups of infants, the investigative and laboratory methods, and the results are presented. Clinical diagnosis as to the presence of intracranial hemorrhage was found to correlate highly with spectrophotometric examination results. "The authors stress the diagnostic importance of CSF examinations in the newborn period by this quantitative spectrophotometric method."

446. Helweg-Larsen, John, and Jacobsen, Erik: "Treatment of Spasticity in Cerebral Palsy by Means of Phenol Nerve Block of Peripheral Nerves," *Danish Medical Bulletin*, 16:20-25, Jan., 1969.

Previous methods of treating spasticity are reviewed. The technique and application of a treatment method is described involving peripheral nerve block with a dilute solution of phenol. Methods used and results obtained in a series of 46 cases of cerebral palsy, ages 2 to 44 years are presented. "It is concluded that nerve block with Phenol solution is not suitable as ordinary treatment of spasticity in children with cerebral palsy because of the brief duration of the effect and the side effects."

447. Henderson, J.L., ed. *Cerebral Palsy in Childhood and Adolescence.* Edinburgh: E. and S. Livingstone, 1961. 403 pp.

Described by various team members is a research survey in which the incidence of cerebral palsy in a defined area of Scotland was investigated. Every afflicted person from birth to age 21 whose parents lived within this area were included. Reported are the medical, neurological, orthopedic, and psychological features and the associated disabilities seen in the included cases. "Social Aspects" are considered in detail. The final two Parts are concerned with etiological factors and conclusions. A bibliography and appendices follow.

448. Herer, Gilbert R.: "Evaluation of Hearing in Infants and Young Children," *Clinical Proceedings of Children's Hospital of the District of Columbia*, 23:18-33, Jan., 1967.

The normal language and speech development from birth to age two years is traced, and available methods of assessing the heading of infants and young children are explained. Methods discussed include the observation of response to auditory stimuli, electrodermal audiometry, reward audiometry, play audiometry, and standard audiometric test techniques.

449. Heyns, O.S.: "Use of Abdominal Decompression in Pregnancy and Labour to Improve Foetal Oxygenation," *Developmental Medicine and Child Neurology*, 4:473-482, Oct., 1962.

A device is thoroughly described which can be used to reduce the atmospheric pressure around the abdominal wall during pregnancy and labor. This application of abdominal decompression was found to reduce "intra-amniotic pressure during uterine contractions," shorten labor in primiparae, decrease the pain of labor, and significantly benefit the fetus. To assess the later, 244 decompression babies and 80 controls were tested on the Gesell scales. The decompression infants were found to be greatly superior with respect to mental and physical development. Usage of the apparatus is discussed in relation to the prevention of anoxia. "It is suggested that such improved oxygenation in utero prevents loss or impairment of neurones. If this claim is substantiated, cerebral palsy may be reduced, the proportion of inferior newborn babies may be raised to a normal level, and the proportion of superior infants largely increased."

450. Heyns, O.S.; Samson, J.M.; and Graham, J.A.C.: "Influence of Abdominal Decompression on Intra-Amniotic Pressure and Foetal Oxygenation," *Lancet*, 1:289-292, Feb. 10, 1962.

Methods and findings are reported when two groups of women were treated with abdominal decompression during pregnancy and during labor, if possible. Intra-amniotic pressure was lowered; thus, fetal oxygenation was improved and fetal hypoxia was prevented. Favorable conditions of the infants are described.

451. Heys, R.F.; Scott, J.S.; Oakey, R.E.; and Stitch, S.R.: "Estriol Excretion in Abnormal Pregnancy," *Obstetrics and Gynecology*, 33:390-396, Mar., 1969.

Estriol levels found in clinically abnormal conditions in late pregnancy were determined and studied in order to assess the value of this method as a predictor of fetal condition. The abnormal conditions examined were retarded fetal growth, previous placental insufficiency, hypertensive toxemia, diabetus mellitus, and rhesus isoimmunization. Results concerning each condition are presented, and "suggest that the method is of value as a guide to the prevention of fetal death." Subsequent clinical findings are reported for 59 pregnant women having subnormal estriol values and confirm "that low estriol excretion is associated with a particularly high fetal risk." The "application of estriol assay in clinical practice" is discussed, and conclusions are listed.

452. Hibbard, L.T., and Anderson, G.V.: "Clinical Applications of Ultrasonic Fetal Cephalometry," *Obstetrics and Gynecology*, 29:842-847, June, 1967.

The procedure and results of using this method for estimating fetal maturity in 288 pregnancies are reported. It was found to correlate well with caliper measurements after birth and with birth weight. Results of utilizing the method in cases of toxemia, third trimester hemorrhage, premature rupture of the membranes, elective Cesarean section, diabetes, and other conditions are described. It was also found that "an average biparietal diameter can be related to the week of gestation when the patient's menstrual history is considered accurate." Calculated average biparietal diameters for several gestational weeks are presented.

453. Hirata, Y.; Matsuo, T.; Shibata, M.; Takatera, Y.; and Nakamura, K.: "Experimental Studies on the Development of Kernicterus," *Biologia Neonatorum*, 12:371-377, 1968.

Kernicterus and the causal factors involved are reviewed. Kernicterus was experimentally produced in rat fetuses by causing hypoxia and then intraperitoneally injecting a bilirubin solution into the fetus. In a study on prevention, when hypoxia was induced, the bilirubin solution injected, and then adrenochrome given, the development of kernicterus was prevented. But when no hypoxia was induced, the bilirubin solution injected, and then hyaluronidase given, "kernicterus was readily induced." It is concluded that "the blood brain barrier appears to play an important role in the development of kernicterus."

454. Hoag, Roger W.: "Use of Urinary Estriol Determinations in High-Risk Pregnancy in the Community Hospital," *American Journal of Obstetrics and Gynecology*, 110:203-209, May 15, 1971.

This paper was written for the purpose of describing the application of urinary estriol assays "at the level of the Community Hospital." Twenty-four hour urinary estriol determinations were made for 199 "high risk" obstetric patients. Methods used, the various complicating conditions of the patients, the types of delivery employed, and the correlations made between estriol level and condition of the fetus are described. "Past 33 weeks of gestation, no fetal loss occurred if estriol was above 16 mg. per 24 hours, and no infants survived when estriol levels were less than 4.9 mg. per 24 hours." Also considered is the usefulness of the method in terms of the various complications seen in the women. It was found to be very helpful in determining whether to intervene in a pregnancy or to allow the pregnancy to continue to term. Deficiencies revealed by the study are mentioned.

455. Hobel, Calvin J.: "Intrapartum Clinical Assessment of Fetal Distress," *American Journal of Obstetrics and Gynecology*, 110:336-342, June 1, 1971.

Seventy-six distressed fetuses were continuously monitored during labor using fetal heart rate and fetal scalp blood sampling techniques. Fetal and neonatal outcome are reported. Presented findings include changes observed during labor in pH, Po_2, Pco_2, and base deficits. Obstetric conditions in the cases and their relationships to the signs of fetal distress are described, and fetal observations are related to neonatal conditions. Findings are interpreted.

456. Hodgman, Joan E., and Schwartz, Alberto: "Phototherapy and Hyperbilirubinemia of the Premature," *American Journal of Diseases of Children*, 119:473-477, June, 1970.

Use of phototherapy to prevent hyperbilirubinemia was found to be effective in this study. Considered were 47 light-treated infants and 51 control infants, all with birth weights of from 2 lb. 10 oz. to 3 lbs. 4 oz. Bilirubin equaled or exceeded 15 mg./100 cc. in 25.5% of the controls and in none of the light-treated infants. Treatment was as effective in dark-skinned infants as in white infants. The presence of green stools in the treated infants was the only difference noted in clinical behavior. It is felt that the benefits and safety of phototherapy will have to be established by evaluating the growth and development of the infants studied.

457. Holser-Buehler, Patricia: "The Blanchard Method of Feeding the Cerebral Palsied," *American Journal of Occupational Therapy*, 20:31-34, Jan.-Feb., 1966.

This method is presented in detail, and the positive results of its use with cerebral palsied children, ages 3 to 21 years, are described with some case histories included as illustration.

458. Holt, K.S. *Assessment of Cerebral Palsy. I. Muscle Function, Locomotion and Hand Function.* London: Lloyd-Luke, 1965. 214 pp. (Series: For II see #463.)

Written for those concerned with the care of cerebral palsied children, this book deals with the assessment of physical characteristics in cerebral palsy. Considered are procedures of assessing muscle and joint action, locomotor function, and hand and arm skill. Many tests and measurements are described, and relevant case histories are reported. Recording the results of assessment is described in the final chapter. Bibliographies are included after each chapter.

459. Holt, K.S.: "Deformity and Disability in Cerebral Palsy," *Developmental Medicine and Child Neurology*, 5:629-631, Dec., 1963.

The terms "deformity" and "disability" are defined and differentiated. Implications, resulting from this differentiation, for treating cerebral palsied children are presented.

460. Holt, K.S.: "Hand Function in Young Cerebral Palsied Children," *Developmental Medicine and Child Neurology*, 5:635-640, Dec., 1963.

Two tests, used to assess hand function in young hemiplegic children are described. In Test 1, the frequency of hand usage is determined by noting the amount of time the child used both hands together and the affected hand alone. Test 2 measures the "quality of hand function." A study of eight hemiplegic two and three year old children is presented to illustrate the application of these tests. The tests were administered at the beginning of the study and ten months later. During this time all of the children had received treatment, but four selected randomly, had also had their unaffected arms "bound up for one month." Results on each test are presented. Although the results were not found to be conclusive, it is suggested that "restricting the use of the nonaffected hand in young hemiplegic children for a temporary period" is worthy of further study.

461. Holt, K.S.: "The Plantar Response in Infants and Children," *Cerebral Palsy Bulletin*, 3:449-454, 1961.

The response, its elicitation, and its usefulness as a clinical sign of CNS damage are considered. Also described are the changes seen in the response as the infant matures and the status of the response in cerebral palsy. Considerable research on the subject is mentioned.

462. Holt, K.S.: "The Use of Diazepam in Childhood Cerebral Palsy; Report of a Small Study Including Electromyographic Observations," *Annals of Physical Medicine, Supplement*, 16-24, 1964.

"Blind controlled studies of diazepam were carried out on two groups of patients." The first group consisted of seven cerebral palsied children ages 6 1/2 to 12 1/2 years, and the second consisted of six cerebral palsied children ages 12 months to 3 1/2 years. Cases and methods are described. With regard to the seven older children, "the over-all impression obtained...was of improvement during the period of treatment with the active drug in 4 cases." With regard to the six younger children, the parents of five "reported definite improvement which coincided with the diazepam treatment periods," and tharapists noted "definite improvement during the diazepam treatment periods" in four children. Side effects occurred in five of the thirteen cases and are described. Electromyographic findings in the cases are discussed in detail, and eight conclusions drawn from the study are listed.

463. Holt, K.S., and Reynell, J.K. *Assessment of Cerebral Palsy, II*. London: Lloyd-Luke, 1967. 187 pp. (Series: For I see #458.)

Discussed in this volume are the assessment in cerebral palsy of vision, hearing, speech, language, communication, and psychological factors. The interdisciplinary approach to assessment is emphasized, and numerous case histories are presented. Bibliographies follow every chapter.

464. Hon, Edward H.; Khazin, A.F.; and Paul, R.H.: "Biochemical Studies of the Fetus. II. Fetal pH and Apgar Scores," *Obstetrics and Gynecology*, 33:237-255, Feb., 1969. (Series: For I see #465, III see #537, IV see #536.)

In this report is presented the relationship between fetal pH measurements and subsequent Apgar scores as found in the 194 obstetric patients described in the previous paper. Continuous biophysical records of these patients were made, as described, and "a total of 7,797 biochemical determinations were done on samples from the mothers, the fetuses, and neonates of this group" including 1117 fetal pH measurements. Much data on these cases are presented and indicate "that, while fetal pH correlates in a general way with Apgar scores, there is a considerable overlap between pH values for high- and low-score babies." Figures, graphs, tables, and explanations are presented.

465. Hon, Edward H., and Khazin, Aida F.: "Biochemical Studies of the Fetus. I. The Fetal pH-Measuring System," *Obstetrics and Gynecology*, 33:219-236, Feb., 1969. (Series: For II see #464, III see #537, IV see #536.)

"Some observations" of this biochemical system when used in the clinical evaluation of the fetus in situations involving fetal distress and high risk pregnancy are described. "Theoretical considerations" are discussed, and a study involving use of the method with 194 obstetric patients is presented. Two characteristics of this system are defined and were evaluated in the study: "(1) response time and memory" and "(2) relative sensitivity." It is concluded that "the fetal scalp blood pH-measuring system has a rapid response and short memory under the conditions it is used for the early detection of clinically diagnosed fetal distress." Other limitations of the method are pointed out, and several pages of illustrative patterns are included and described.

466. Honzik, Marjorie P.; Hutchings, John J.; and Burnip, S. Robert: "Birth Record Assessments and Test Performance at Eight Months," *American Journal of Diseases of Children*, 109:416-426, May, 1965.

A study, conducted to measure the reliability of hospital birth records in predicting neurological handicaps at 8 months of age, is described. Using these hospital records, two pediatricians independently assessed 197 infants to be "not suspect," "possibly suspect," "suspect," or "definitely suspect." These criteria are defined. In those cases where the doctors disagreed on the rating, a discussion was conducted and a "conference rating" was assigned. Psychologists, unaware of the previous ratings, administered the "Bayley Mental and Motor Scales" to these infants at 8 months of age. Results on these two test scales are presented in detail and compared to the ratings from the records. The significant finding was that a relationship did exist between the test scores and the ratings in both sexes. On both the mental and motor scales, the "definitely suspect" group of infants was the "most clearly differentiated from the other three groups." Implications are considered.

467. Horger, E.O., and Hutchinson, Donald L.: "Diagnostic Use of Amniotic Fluid," *Journal of Pediatrics*, 75:503-508, Sept., 1969.

Discussed are the values and methods of amniotic fluid analysis in managing the pregnancies of Rh-sensitized women, in evaluating and detecting fetal distress, in assessing fetal maturity, and in determining familial disorders.

468. Horger, E.O., and Hutchinson, Donald L.: "Intrauterine Fetal Transfusion in the Treatment of Erythroblastosis Fetalis," *American Journal of Obstetrics and Gynecology*, 103:959-966, Apr. 1, 1969.

Eighty-three intrauterine fetal transfusions were given to 59 patients, selected primarily on the basis of amniotic fluid pigment levels and postobstetrical history. The transfusion procedure is described. "Thirty of the infants were stillborn"; 10 died during the neonatal period; and 19 survived. The cases are analyzed and fetal and maternal complications are discussed. "Comment" is made on several factors including patient selection methods, gestational age at the time of the transfusions, early delivery versus intrauterine transfusion, and mode of delivery. "The salvage of one third of infants whom we believe would have died otherwise seems to both justify and demand intrauterine fetal transfusion."

469. Horsky, J., and Stembera, Z.K., eds. *Intra-Uterine Dangers to the Foetus*. Based on an International symposium held in Prague, October 11-14, 1966. Amsterdam, New York: Excerpta Medica Foundation, 1967. 615 pp.

This volume contains a great number of papers presented at this International symposium. The papers are grouped into four main categories: "I. Metabolic and Circulatory Disorders in the Fetus and Newborn, Etiology and Pathogenesis," "II. Early Diagnosis of Danger to the Fetus," "III. Therapy to the Fetus in Danger," and "IV. Dystrophic Fetus and Newborn." The book is indexed by subject and by author.

470. Horton, M.E.: "The Development of Movement in Young Children," *Physiotherapy*, 57:149-158, April, 1971.

Several aspects of the motor behavior of young children are discussed including independent locomotion development, prehension development, skilled motor development, and the influences of maturation and environment on movement development. Numerous photographs illustrate various stages of motor development.

471. Hughes, Edward: "The 'At Risk' Child," *The Practitioner*, 192:534-539, Apr., 1964.

Discussed are "the compilation of an 'at risk' register," the 'at risk' categories in which children may be classified, the maintenance of a register, the justification for a register, and the use of screening tests.

472. Huisjes, H.J., and Arendzen, J.H.: "Estimation of Fetal Maturity by Cytologic Evaluation of Liquor Amnii," *Obstetrics and Gynecology*, 35:725-729, May, 1970.

Two hundred and four amniotic fluid samples from 99 pregnant women "were screened for polygonal fetal epidermal cells" by using a described technique to determine the value of the test in estimating fetal maturity. Forty-two of the patients were considered to have normal pregnancies while the others were "suffering from various disturbances of pregnancy." "The proportion of such cells in the amniotic fluid was seen to rise abruptly around the 38th week of pregnancy." "This phenomenon can be used as a test for estimating fetal maturity," and further evidence presented supports its value for use in dysmaturity cases.

473. Hunter, Alison: "Perinatal Events and Permanent Neurological Sequelae," *New Zealand Medical Journal*, 68:108-113, Aug., 1968.

A group of 228 infants, considered to be at risk, were studied prospectively as described. The "incidence of neurological abnormalities" is reported for three groups: those who were small for dates but had no other complications, those subjected to birth hypoxia, and those having neonatal hypoglycemia. "Significant neurological signs including cases of mental defect, cerebral palsy and epilepsy were found in 22.5 percent of those seen at follow up. The incidence of significant neurological signs was high following hypoglycemia and higher in those with the more severe degrees of hypoxia than in those with milder degrees of hypoxia." Commonly seen features in those infants with neurological disorders are listed.

474. Huntingford, Peter John; Huter, Karl Arno; and Saling, Erich, eds.: *Perinatal Medicine, 1st European Congress, Berlin*. New York: Academic Press, 1969. 299 pp.

Published here are the papers presented by the contributors to this Congress. Several papers appear under each of the following topics: "Amniotic Fluid and the Early Detection of Fetal Hypoxia," "The Clinical Significance of Biochemical Tests on the Amniotic Fluid," "The Prevention of Rhesus Iso-Immunization," "The Antenatal Diagnosis of Rhesus Incompatibility," "Intra-Uterine Treatment of Rhesus Incompatibility and the Immediate Treatment of the Hydropic Infant," "The Clinical Significance of Electronic Methods for Monitoring the Fetal Heart," "Fetal Blood Sampling," "Important Clinical Relationships between the Mother and Fetus during Labour," "Energy Requirements," "Resuscitation of the Newborn," "The High Risk Baby," "The Treatment of Respiratory Disturbances in the Newborn Infant," and "The Prevention, Early Detection and Treatment of Late Sequelae in the Baby at Risk."

475. Hutchinson, Donald L., and Horger, E.O.: "Hydrops Fetalis; Antenatal Diagnosis and Treatment," *American Journal of Obstetrics and Gynecology*, 103:967-971, Apr. 1, 1969.

The value of transfusing "the grossly hydropic fetus" is discussed and the results of treating 17 such infants are reported. Methods of diagnosis and transfusion are reported. "Five of the 17 infants were live born, two died in the neonatal period, but three survived and appear to be normal and well" with no evidence of neurological disorder. Evaluation of these children is continuing. Possible methods of preventing and reversing hydrops are discussed.

476. Huttenlocker, Peter R., and Smith, Dennis B.: "Acute Infantile Hemiplegia Associated with Thrombocytosis," *Developmental Medicine and Child Neurology*, 10:621-625, Oct., 1968.

Two cases are described in which acute infantile hemiplegia was associated with thrombocytosis. After a review of other related studies, it is concluded that a significant causal relationship may exist. It is recommended that platelet counts be taken for patients with acute infantile hemiplegia.

477. Hyman, Carol B.; Keaster, Jacqueline; Hanson, Virgil; Harris, Irwin; Sedgwick, Robert; Wursten, Helmut; and Wright, Ann Rose: "CNS Abnormalities After Neonatal Hemolytic Disease or Hyperbilirubinemia," *American Journal of Diseases of Children*, 117:395-405, Apr., 1969.

Four hundred and five infants, admitted to the Children's Hospital of Los Angeles and diagnosed as having "hemolytic disease of the newborn or indirect hyperbilirubinemia" were studied for "at least four years" for the purpose of detecting "all CNS related abnormalities" and correlating "the findings with bilirubin exposure and certain other neonatal factors." All methods used are described and terms are defined. Fifteen per cent of the children were found to have one or more CNS abnormalities. These are listed and individually discussed. Electroencephalographical and psychological findings, and relationships found between CNS abnormalities and the factors of bilirubin values, birth weight, and other neonatal complications are reported. The value of the neonatal neurological examination in this study for predicting CNS abnormalities is discussed and conclusions are listed.

478. Illingworth, R.S.: "Delayed Maturation in Development," *Journal of Pediatrics*, 58:761-770, June, 1961.

Delayed maturation in many areas of development is discussed: general delay; motor, sphincter control, speech, hearing, and vision maturational delay; "psychoneurological problems"; and "psychological immaturity." Numerous patients of the author are briefly described as examples. The importance of taking "normal variations" into account in developmental assessment is discussed.

479. Illingworth, R.S.: "Delayed Motor Deficit," *Pediatric Clinics of North America*, 15:569-580, Aug., 1968.

The features and causes of delayed motor development are outlined. Diagnosing the cause of the delay in cases of "normal variation," mental subnormality, hypertonia, hypotonia, "clumsiness," and other causes is discussed.

480. Illingworth, R.S.: *The Development of the Infant and Young Child; Normal and Abnormal*. 4th ed., Edinburgh and London: E. & S. Livingstone, 1970. 382 pp.

The principle subjects examined within this volume are the developmental assessment of the infant and young child and the diagnosis of various disorders affecting development. Chapters are written on "The Predictive Value of Developmental Assessment"; on the various prenatal, perinatal and environmental influences on development; on the examination of the infant's "reflexes and reactions"; on the assessment of maturity, assessment of the newborn, and assessment of the older infant and young child; on normal development and normal variations in development; on "History Taking"; and on "the relative importance of the different fields of development" in assessment. Also discussed in separate chapters are "Mental Retardation", "The Diagnosis of Cerebral Palsy," "Assessment of Suitability for Adoption," and "The Association of Mental Subnormality with Physical Defects and Disease." "Perhaps the most important chapter is the one - on the pitfalls in developmental assessment." Several series of photographs illustrate procedures.

481. Illingworth, R.S.: "The Diagnosis of Cerebral Palsy in the First Year of Life," *Developmental Medicine and Child Neurology*, 8:178-194, Apr., 1966.

In this article Dr. Illingworth describes "the minimum requirements for the diagnosis of cerebral palsy in the first year." Factors appearing from the history which place a child at risk are listed and discussed, and tests which must be included in every routine examination are listed. Any abnormal finding warrants additional study. Findings in the "Spastic Form of Cerebral Palsy" and "Findings in Athetoid Cerebral Palsy" are described and summarized. Also discussed are the difficulties encountered in "Making the Diagnosis of Cerebral Palsy." Thirty plates showing methods of testing and normal and abnormal infant positions are included.

482. Illingworth, R.S.: "The Increasing Challenge of Handicapped Children," *Clinical Pediatrics*, 3:189-191, April, 1964.

Of primary concern in this editorial are the reasons for the large increase in number of physically handicapped children. Such reasons include the increased birth rate, the higher survival rate of premature infants, irradiation of mothers, surgical and drug advances in pediatrics, and the improved medical and surgical treatment for the existing handicapped children. Also briefly discussed are those handicapping conditions which have decreased in frequency and the problems caused by the overall increase in the physically handicapped population.

483. Illingworth, R.S. *An Introduction to Developmental Assessment in the First Year.* Preface by Dr. Mary D. Sheridan. London: Spastics Society in association with Heinemann Medical Books, 1962. 42 pp. (Little Club Clinics in Developmental Medicine, No. 3.)

Features included in this handbook are a discussion of "The Purpose of the Developmental Examination," a thorough listing and illustrating of the milestones occurring during the first year in the normal developmental process, and a detailed outline of the necessary steps in making a diagnosis of a developmental nature. There is a short note on assessing the intellectual potential of the handicapped child.

484. Illingworth, R.S.: "The Predictive Value of Developmental Tests in the First Year, with Special Reference to the Diagnosis of Mental Subnormality," *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 2:210-215, 1961.

When 122 infants, including cerebral palsied but excluding cretins, mongols, and hydrocephalics, were diagnosed during the first year of life by "simple modifications of Gesell's tests" to be mentally subnormal and were then assessed by standard IQ tests at school age, "65 out of 87 survivors had an IQ score of less than 70." Thus, it was shown that mental subnormality could be diagnosed "in infancy with a considerable degree of accuracy." The views of the author concerning developmental tests in infancy and their relation to performance later in childhood are explained.

485. Illingworth, R.S.: "The Risk of Mental Subnormality and Cerebral Palsy," *Clinical Pediatrics*, 3:439-442, July, 1964.

Pre-, peri-, and postnatal factors which place a child at risk of mental subnormality and/or cerebral palsy are listed and commented upon. Some "diagnostic tips" regarding the two conditions are given.

486. Illingworth, R.S.: "Sucking and Swallowing Difficulties in Infancy: Diagnostic Problem of Dysphagia," *Archives of Disease in Childhood*, 44:655-665, Dec., 1969.

The literature on the subject is reviewed, a "classification of dysphagia in the newborn" is presented, 19 case reports are briefly presented, the "mechanics of swallowing" are described in three phases, and the diagnosis and prognosis of dysphagia are discussed.

487. Illingworth, R.S., and Lutz, W.: "Head Circumference of Infants Related to Body Weight," *Archives of Disease in Childhood*, 40:672-676, Dec., 1965.

Difficulties involved in the interpretation of the measurement of maximum head circumference are discussed. A study was undertaken to find an accurate method of relating infant head size to weight by "using a single graph for each child." Graphs and a correction are presented, and the value of such measurement in diagnosis is briefly mentioned.

488. "In Preemies: Beware Kernicterus," *Medical World News*, 11:20, Mar. 6, 1970.

An exchange transfusion is usually indicated in a newborn infant if the serum bilirubin level reaches 20 mg%. Findings from investigations at Albert Einstein College of Medicine show that such transfusions may be indicated at lower levels in order to combat kernicterus. A post morten diagnosis of kernicterus "was made in nine of 15 infants who died between the third and seventh day of life." Bilirubin levels in these babies ranged from 15.6 mg.% to 9.4 mg.%. An Einstein investigator comments.

489. Indyk, Leonard, and Cohen, Shep: "Newborn Intensive Care in the United States, East and West; Comments on Representative Facilities and Programs, and a Proposed New Point Scoring System for Evaluation," *Clinical Pediatrics*, 10:320-327, June, 1971.

Results are reported of a survey made of 12 Newborn Intensive Care Units and conducted by means of a questionnaire. Topics covered by the survey included: "organization and medical staff," "nursing coverage and nurse education," "entrance precautions," "layout and utilities," "incubators and other bed units," "radiology procedures and practices," "blood gas analysis," "transportation and transporters," "monitoring," and "data collection and analysis." A rating system ('InCo System') was devised to obtain a numerical value of the quality of care in these Units, and the scores given the 12 Units surveyed are given. Some new methods of treatment that were encountered are discussed.

490. "Infant's Evaluation Needs Gauge of Mental Capacity," *Pediatric News*, 4:3, Mar., 1970.

Dr. Charles U. Lowe of the National Institute of Child Health and Human Development states his belief that when evaluating neonatal development, it is important to consider the infant's intellectual ability along with the other standard factors. Results of studies relating malnutrition and learning ability, brain size, etc., are presented, and two current studies on diet supplementation are mentioned as being possible sources of "useful data."

491. Ingram, T.T.S.: "Child Care in General Practice; Cerebral Palsy. Part I." *British Medical Journal*, 2:1638-1640, Dec. 26, 1964. (Series: For II see #492.)

Cerebral palsy, particularly the diagnostic aspects, is reviewed for the general practitioner. The importance of early diagnosis and referral to specialists is mentioned. The classification of the condition is given in a chart, etiological factors are presented, and the important characteristic of retarded motor development is described as it is related to the various clinical types. Also related to the various types of cerebral palsy are the signs seen in infancy. Associated deficiencies are briefly mentioned.

492. Ingram, T.T.S.: "Child Care in General Practice; Cerebral Palsy. Part II," *British Medical Journal*, 1:39-40, Jan. 2, 1965. (Series: For I see #491.)

Considered are the management of cerebral palsied patients and the prognosis in cerebral palsy. Subjects discussed under the area of management include assessment, and various aspects of treatment.

493. Ingram, T.T.S.: "Clinical Significance of the Infantile Feeding Reflexes," *Developmental Medicine and Child Neurology*, 4:159-169, Apr., 1962.

The rooting, lip, sucking, and swallowing reflexes are considered to be the major feeding reflexes and are described. Explained are the reasons why "the individual feeding reflexes give relatively little information about the state of maturation of the infant's nervous system, or about the presence of focal lesions in the brain." Rather it is felt that "the observation of spontaneous feeding behaviour gives considerable information about the child's level of motor, linguistic, adaptive and social maturation." This concept is explained further.

494. Ingram, T.T.S.: "Congenital Ataxic Syndromes in Cerebral Palsy," *Acta Paediatrics (Uppsala)*, 51:209-221, March, 1962.

In this "Review Article" Dr. Ingram historically describes the ataxic disorders, classifies them into the two categories of ataxia and ataxic diplegia, and differentiates between these two types. Studies on prevalence of ataxic cerebral palsy are considered. Reviewed in detail are the clinical findings from 60 patients in Edinburgh with congenital ataxia. Etiological factors and the clinical course from birth of both types of ataxic cerebral palsy seen in these patients are thoroughly described.

495. Ingram, T.T.S.: "The Early Recognition of Handicaps in Childhood," *Journal of Learning Disabilities*, 2:252-255, May, 1969.

Methods used in early recognition, including the "at risk" register, are discussed. Also considered briefly are the difficulties that occur for the family and related factors during the diagnostic period.

496. Ingram, T.T.S.: "The Neurology of Cerebral Palsy," *Archives of Disease in Childhood*, 41:337-357, Aug., 1966.

Aspects of cerebral palsy considered in the first part of this review article include diagnosis, examination, and methods of classification. Each of the major categories (hemiplegia, bilateral hemiplegia, diplegia, ataxia, and dyskinesia) of the condition are then explained with respect to incidence, causal factors, symptoms, related disabilities, treatment, and so forth. Associated defects are discussed, and studies concerned with "changes of muscle tone in cerebral palsy" are mentioned. A lengthy bibliography follows.

497. Ingram, T.T.S.: "The New Approach to Early Diagnosis of Handicaps in Children," *Developmental Medicine and Child Neurology*, 11:279-290, June, 1969.

The methods of detecting congenital handicaps and the time at which detection is made have changed. Increased use of and sophistication of neurological examinations and identification of risk groups have aided in earlier identification and treatment. Discussed are the five main periods where handicaps are detected: before conception, during pregnancy, during labor and delivery, during the postnatal period, and during childhood. A review of known or possible causative factors is conducted in each of these categories. Emphasis is placed on the need to make risk registers more efficient. The new method of "diagnosis by increasing suspicion" and the practical problems involved are explained.

498. Ingram, T.T.S. *Pediatric Aspects of Cerebral Palsy.* Edinburgh: E. & S. Livingstone, 1965. 515 pp.

This book presents the results of a study of cerebral palsied children in Edinburgh who were born between 1938 and 1953. The study was conducted to ascertain the prevalence of cerebral palsy in Edinburgh and to study its causes and effects on the patients and their families. The problems of the patients 10 years after the initial study (1962-63) are outlined in the final two chapters. This volume is particularly strong in the presentation of the etiological factors involved in the cases studied, but the care of the children with cerebral palsy is not directly discussed.

499. Ingram, T.T.S.: "Spasticity in Cerebral Palsy," *Clinical Orthopedics and Related Research*, 46:23-36, May-June, 1966.

Topics considered in this article include the clinical and neurophysiological concepts of muscle tone, the process of muscle maturation in the normal child, the effects of cerebral palsy on posture and muscle tone, and the maturational changes with respect to posture and muscle tone that are seen in cerebral palsy in general and in the various types of cerebral palsy individually. This later subject is considered in detail with the characteristic developmental features of each of the major types presented.

500. Ingram, T.T.S., and Russell, Elspeth M.: "The Reproductive Histories of Mothers of Patients Suffering from Congenital Diplegia," *Archives of Disease in Childhood*, 36:34-41, Feb., 1961.

Results from studying the reproductive histories of 278 mothers in two groups of diplegic children (series A and B) are reported. Scotland was the site of the study. Characteristics of the subjects and investigative methods are described. Findings concerning social class; birth rank of the diplegic children; maternal age, health, and birth rate; pregnancy spacing; contraceptive practices; pregnancy, labor, and delivery histories; etc., are given. The "findings are thought to provide some evidence in support of the theory that underlying abnormalities of the reproductive process in mothers of diplegic children may be responsible for both disorders of pregnancy, labour, and delivery and for the production of abnormal offspring."

501. The Institutes for the Achievement of Human Potential. *A Summary of Concepts, Procedures and Organization.* Philadelphia: The Institutes, 1967. 25 pp.

Four questions are discussed in relation to the work of the Institutes: "1.) Who is brain injured? 2.) Why is he brain injured? 3.) What can be done about brain injury? 4.) How do the procedures of the Institutes benefit the brain injured?" The organization of the Institutes is explained, and an article by Robert J. Doman, et. al. entitled, "Children with Severe Brain Injuries; Neurological Organization in Terms of Mobility," that was published in the September 17, 1960 issue of *The Journal of the American Medical Association* is included. The evaluation of a case, including the forms used, and the progress of the case are presented to illustrate.

502. "Is Fetal Monitoring Worthwhile?" *British Medical Journal*, 1:515-516, Mar. 6, 1971.

Monitoring the fetal heart rate and measuring the pH of the blood during labor are briefly explained. The value of using those methods is contrasted with the simple method of recording the fetal heart rate with a fetal stethoscope. It is felt that when both morbidity and mortality are considered, monitoring is worthwhile in obstetric management. The early detection of asphyxia is seen as "the most important single contribution of monitoring to the care of the fetus in labour."

503. Jacobson, Howard N., and Reid, Duncan E.: "High-Risk Pregnancy. II. A Pattern of Comprehensive Maternal and Child Care," *New England Journal of Medicine*, 271:302-307, Aug. 6, 1964. (Series: For I see #203.)

The problems in the United States involving infant mortality, low socioeconomic classes, population growth, etc. are discussed, and the need for additional "medical manpower" is stated. A program is proposed that would extend adequate medical care to deprived pregnant women and their children. The three principle features of the program are explained. "The first is that the responsibility of the hospital would be greatly extended into the community by the establishment of, or a more effective use of community health centers. Secondly, to increase the accessibility of services and unite medical and social care more firmly, most of the routine maternity and child care would be provided in these community-located health units. Finally, specially prepared 'family nurse practitioners' would provide much of the routine prenatal and postnatal care, thus relieving the physician for hospital and consultant duties."

504. Jacoby, Hannah E.: "Amniotic Fluid Volumes," *Developmental Medicine and Child Neurology*, 8:587-592, Oct., 1966.

The literature is reviewed with respect to the methods used in measuring amniotic fluid volume and the possible clinical value in cases of hydramnios, placental insufficiency, and rhesus isoimmunization.

505. James, Orlando: "New Hope for Brain-Damaged Children," *Parents Magazine and Better Homemaking*, 42:72-75+, Nov., 1967.

A method of treating severely brain damaged children, called "patterning," and its implementation at the Kingsboro Center for Human Potential in Brooklyn are described.

506. Jeavons, Peter M., and Bower, Brian D. *Infantile Spasms: A Review of the Literature and a Study of 112 Cases*. Preface by Neil Gordon. London: Spastics Society in association with Heinemann Medical Books, 1964. 82 pp. (Clinics in Developmental Medicine, No. 15.)

In Part I of this book the literature concerning many aspects of this subject is reviewed. Part II consists of a review of 112 cases of infantile spasms. The clinical characteristics of these cases are described. In an effort to measure the effectiveness of drug treatment, 84 of the cases were treated with one or more of five drugs. The other cases were given anticonvulsants. Results are described. In Chapter 7, the pathology of three fatal cases is described, and in Chapter 8 findings are discussed. A summary and a bibliography follow.

507. Jebsen, Robert H.; Johnson, Ernest W.; Knobloch, Hilda; Grant, Donald Kerr: "Differential Diagnosis of Infantile Hypotonia; The Use of the Electromyograph and the Developmental and Neurologic Examination as Aids," *American Journal of Diseases of Children*, 101:8-17, Jan., 1961.

After the concept of infantile hypotonia is discussed, and symptoms of the condition are described, a report is presented on the values of the electromyograph and the Gesell approach for use in the diagnostic process. On the basis of several examinations and tests, including the two under study, 31 cases of infantile hypotonia were diagnosed. Summaries of each of these cases are given in a two-page chart. Eighteen were found to be "brain damaged" and the rest to have various motor unit diseases. The general characteristics of these two groups are given and typical cases are described in detail.

508. Jenker, F.L., and Rosanelli, K.: "Observations on Cerebrospinal Fluid - Potassium Level in Cerebral Birth Injury," *Neurology*, 16:1047-1050, Oct., 1966.

As part of a detailed examination, cerebrospinal fluid specimens were obtained and examined, as described, in 52 newborns of whom 12 were considered to be normal, 35 had "definite evidence of cerebral birth injury," and 5 displayed symptoms of possible "birth injury or anoxia." Significantly higher potassium values were revealed in the cerebrospinal fluid of the latter two groups as compared to the normal group. "With potassium levels of cerebrospinal fluid, it has been possible to differentiate infants with cerebral birth trauma or anoxia from the uninjured newborn." Implications are considered.

509. Jensen, Gordon D., and Alderman, Margaret E.: "The Prehensile Grasp of Spastic Diplegia," *Pediatrics*, 31:470-477, Mar., 1963.

The prehensile grasp was studied by cinemagraphic technique and compared in 24 normal children and 45 cerebral palsied children, all of preschool age. The features present in a "mature prehensile grasp" were determined and are listed. Also determined and listed are the types of prehension abnormalities noted in the total cerebral palsy group. "Fifty-two abnormalities or deviations" were detected. Eighteen diplegic children in the group of 45 were then analyzed in order to determine the "most prevalent abnormalities" of prehension in this sub-group. These are also listed, and comparison results are described. A case is presented in detail to illustrate the possible usefulness of this method of prehension study to detect "subtle manifestations of neurological abnormalities."

510. Jirsova, V.; Jirsa, M.; Heringova, A.; Koldovsky, O.; and Weirichova, J.: "The Use and Possible Diagnostic Significance of Sephadex Gel Filtration of Serum from Icteric Newborns," *Biologia Neonatorum*, 11:204-208, 1967.

The possibility that "the strength of the protein-bilirubin complex" in serum bilirubin might be a useful index of the risk of kernicterus was examined by performing "sephadex G 25 column gel filtration" on the sera of 17 icteric neonates. It was thought that in cases where low binding strength was present, more bilirubin would be free "to penetrate the blood brain barrier." The method used is described. The newborns were divided into three groups. Group 1 contained six jaundiced neonates. Group 2 contained six neonates with hemolytic disease who had received transfusions and were in good clinical condition. Group 3 consisted of five newborns "with rapidly increasing bilirubinemia with permanent or temporary poor clinical conditions." In Groups 1 and 2 "the bilirubin and proteins passed quickly through the column together on elution indicating a firm protein-bilirubin complex." But in Group 3 "a small amount of nonprotein bound bilirubin remained on the column and the column remained yellow." It is suggested that the method is a definite aid in diagnosing the risk of kernicterus.

511. "The John Hopkins Collaborative Perinatal Project: A Symposium. Part I of a Three Part Series," *John Hopkins Medical Journal*, 128:237-277, May, 1971. (Series: For II see #512, III see #513.)

Data from the above Project are presented at this Symposium which is published in three parts. In separate articles in this first part the Symposium is introduced, "descriptive background" information is given concerning the Project, and follow-up methods are described. Four research papers are then presented: (1) "The Relationship between Fetal Outcome and the Gestational Age and Birth Weight of the Fetus," by Irvin M. Cushner and E. David Mellits; (2) "Results of Vision Screening at Seven Years in the John Hopkins Collaborative Perinatal Project," by Bella Caplan and Letha A. Montgomery; (3) "Serum Bilirubin Levels in Newborn Infants; Distributions and Associations with Neurological Abnormalities during the First Year of Life," by Janet B. Hardy and Margaret O. Peeples; and (4) "A Longitudinal Study of Full-Term Neonates with Hyperbilirubinemia to Four Years of Age," by Yogendra Upadhyay.

512. "The John Hopkins Collaborative Perinatal Project: A Symposium. Part II of a Three Part Series," *John Hopkins Medical Journal*, 128:297-368, June, 1971. (Series: For I see #511, III see #513.)

Presented in this issue are six research papers, reporting data from the above Project and given at this Symposium. They are: (1) "Cord Serum Immunoglobulin Levels and Long-Range Fetal Outcome," by Janet B. Hardy; (2) "Relationships between Cord Serum Immunoglobulin Levels and Later Abnormalities; Is Neonatal Screening for IgM A Worth-While Procedure," by E. David Mellits; (3) "Blood Group Incompatibility and Immunoglobulin Levels," by Bernice H. Cohen and E. David Mellits; (4) "A Descriptive Analysis of the Seven-Year Psychological Data," by Mary Moore and Doris W. Welcher; (5) "Maternal Age and Intellectual Functioning of Offspring," by Michele Lobl, Doris W. Welcher, and E. David Mellits; and (6) "Maternal Intellectual Functioning," by Louise M. Odell.

513. "The John Hopkins Collaborative Perinatal Project: A Symposium. Part III of a Three Part Series," *John Hopkins Medical Journal*, 129:1-53, July, 1971. (Series: For I see #511, II see #512.)

Presented in this issue are six research papers reporting data given at this Symposium. They are: (1) "Behavioral Characteristics of Twins," by Martin A. Kranitz and Doris W. Welcher; (2) "The Possibility of Overdiagnosing Brain Dysfunction from a Single Administration of the Bender Gestalt Test," by Karl H. Wetzel, Doris W. Welcher, and E. David Mellits; (3) "Social Class and Race as Determinants of the Sex of Human Figures Drawn by Seven-Year-Olds," by Helene S. Levi and Doris W. Welcher; (4) "A Multivariate Analysis of Factors Affecting Psychological Performance," by Doris W. Welcher, E. David Mellits, and Janet B. Hardy; (5) "Psychological and Neurological Correlates of Seizure Disorders," by Dennis Whitehouse; and (6) "Reading: A Function of Language Usage," by Miriam P. Hardy, E. David Mellits, and Sharon N. Willig.

514. Johnston, W.H.; Angara, Violetta; Baumal, Ruth; Hawke, W.A.; Johnson, Robert H.; Keet, Sylvia; and Wood, Margaret: "Erythroblastosis Fetalis and Hyperbilirubinemia; A Five-Year Follow-Up with Neurological, Psychological, and Audiological Evaluation," *Pediatrics*, 39:88-96, Jan., 1967.

One hundred and twenty-nine children, who had had hyperbilirubinemia as neonates and of whom 95% had received exchange transfusions, were evaluated at between five and six years of age as described. Results and case histories of the seven children showing sequelae are described. "All (of the seven) had sensorineural hearing impairment, associated in three with asphasia, and in one with mental retardation. Three were mildly athetotic, three had hearing loss alone." The results "suggest that multiple exchange transfusions are effective in preventing long-term sequelae due to hyperbilirubinemia."

515. Jones, Margaret H.: "Management of Hemiplegic Children with Peripheral Sensory Loss," *Pediatric Clinics of North America*, 7:765-775, Aug., 1960.

The literature on the types and the frequency of peripheral sensory loss in hemiplegic children is reviewed, and a study, designed "to assess methods of testing sensory deficits, particularly cortical-sensory modalities, in the cerebral palsied child under six years of age," is described. Results regarding the type and incidence of sensory deficits in hemiplegic adults, in hemiplegic children ages 6 to 12, and in hemiplegic children under age 6 are reported. It was found that it was possible "to demonstrate sensory impairment or loss in children under six years of age." Also reported are encouraging preliminary results of a multisensory stimulation training program used with young hemiplegic children.

516. Jones, Margaret H.: "A Program for Infants and Young Children with Physical Handicaps," in *Interdisciplinary Programming for Infants with Known or Suspected Cerebral Dysfunction*. The report of an interdisciplinary conference held at Santa Monica, California, March 16-18, 1970; edited by Gene Hensley and Virginia Patterson. Boulder, Colo.: Western Interstate Commission for Higher Education, 1970.

Essentially a review of the literature, this article is concerned with programs for infants with known or suspect central nervous system and/or sensory deficits. The pre-nursery school programs for such children ages 1 1/2 to 3 years are discussed. The need for programs to include parental guidance and counseling is stressed. A two-page table, designed by Paine and Oppe and entitled "Clues and Causes for Delayed Speech," is included. It is designed to aid in the understanding of the young children's communication problems. A lengthy bibliography accompanies.

517. Jones, Margaret Holden: "Cerebral Palsy: Diagnosis in Young Children," *California Medicine*, 94:156-162, March, 1961.

Dr. Jones presents some of the methods found to be useful in the diagnosis and management of the young cerebral palsied child. Assessment scales compiled by the staff of the Cerebral Palsy Diagnostic and Treatment Clinic at Children's Hospital, Los Angeles, are included. Also presented are an outline of a minimal

518. Jones, Walter, and Man, Evelyn B.: "Thyroid Function in Human Pregnancy. VI. Premature Deliveries and Reproductive Failures of Pregnant Women with Low Serum Butanol-Extractable Iodines, Maternal Serum TBG and TBPA Capacities," *American Journal of Obstetrics and Gynecology*, 104:909-914, July 15, 1969. (Series: For II see #629, III see #630, IV see #631, V see #627, VII see #626, VIII see #628.)

The deliveries of 1252 pregnancies without low BEI values were compared with the deliveries of 168 patients having uncomplicated pregnancies but low BEI values. There were 33 pregnancies (19.6%) in the later group who had reproductive failures or who "were delivered of surviving premature infants." For the 1252 deliveries the incidence of reproductive failure and prematurity was 12.6%. The difference was statistically significant. The term "reproductive failure" is explained. The reproductive histories of 97 of the low BEI women were matched with those of 97 normal BEI women who "had been delivered of a surviving infant of 2500 grams or more." The difference in the outcome of delivery in the two groups was statistically significant. "Both in pregnancies studies and in previous reproductive histories the hypothyroxinemic women had a lesser incidence of surviving infants weighing 2500 grams+ and a higher incidence of abortions, prematurity, stillbirths, major anomalies, and progeny with subsequent retardation."

519. Jonxis, J.H.P.; Visser, H.K.A.; and Troelstra, J.A., eds. *Aspects of Praematurity and Dysmaturity*. Nutricia Symposium held at Groningen, The Netherlands, May 10-12, 1967. Springfield, Illinois: Charles C. Thomas, 1968. 356 pp.

The papers presented and the discussions which followed at this symposium are published in this volume. A different aspect of the subject was considered at each session, and the papers are arranged according to the session of the symposium at which they were presented. The topic of Session I was the "Role of the Placenta"; Session II, "Assessment of Foetal Development"; Session III, "Experimental Aspects of Dysmaturity"; Session IV, "Hereditary and Environmental Aspects of Low Birthweight"; Session V, "Adaptation of the Low Birthweight Infant to Extra-Uterine Life"; Session VI, "Obstetrical and Preventive Aspects of Dysmaturity"; and, Session VII, "Developmental Aspects." The final session was devoted to summarization.

520. Kaplan, Eugene; Hertz, Fritz; Scheye, Elsie; Robinson, Lawrence D., Jr.: "Phototherapy in ABO Hemolytic Disease of the Newborn Infant," *Journal of Pediatrics*, 79:911-914, Dec., 1971.

Criteria defining ABO hemolytic disease of the newborn (ABO-HDN) are listed, and the experience of the authors with the use of phototherapy in cases of ABO-HDN is reported. Results are presented regarding the bilirubin patterns detected in ABO-HDN cases and the comparison of 29 treated infants with 29 untreated infants. "Phototherapy for ABO hemolytic disease of the newborn infant usually reduces or prevents a further rise in serum bilirubin levels." "Phototherapy is not indicated for infants with ABO disease of mild onset and severity. In severely affected infants, a trial period of phototherapy is justified but must not exclude consideration of exchange transfusion for control of rapidly rising serum bilirubin levels."

521. Karelitz, Samuel, and Fisichelli, Vincent R.: "The Cry Thresholds of Normal Infants and Those with Brain Damage; An Aid in the Early Diagnosis of Severe Brain Damage," *Journal of Pediatrics*, 61:679-685, Nov., 1962.

Two hundred and ninety-three infants and young children, of whom 63 were "unquestionably abnormal" and 13 were "doubtful," were studied with respect to cry thresholds by using a described 'standard stimulation procedure.' Among the findings was the fact that "infants with diffuse brain damage require more stimulation to produce a standard 1 minute crying response than do normal infants." Other conclusions are listed.

522. Karlin, Isaac; Karlin, David B.; and Gurren, Louise: *Developmental and Disorders of Speech in Childhood.* (Chapter 14). Springfield, Illinois: Charles C. Thomas, 1965. pp. 256-276. (American Lecture Series Pub. No. 614.)

In Chapter 14 of this book the speech disorders occurring in cerebral palsy and therapeutic methods employed are described. The problem of delayed speech is considered. The discussion of therapy includes information on preventive therapy, psychological and physiological readiness for speech, and specific techniques used to improve speech problems.

523. Karlsson, B.; Nauman, B.; and Gardestrom, L.: "Results of Physical Treatment in Cerebral Palsy," *Cerebral Palsy Bulletin*, 2:278-285, 1960.

A survey of 114 cerebral palsied children, treated for at least three years in Stockholm, was conducted to determine the results of physical treatment in these cases. The children, the treatment methods, and the cases, classified by type, are described. In 62 children improvement was found; in 48 the condition was unchanged; and in 4 deterioration was noted. Results according to cerebral palsy types, intensity of treatment, severity of motor symptoms, sex, age at treatment initiation, epilepsy, and mental development are presented. Early treatment was found to be of much value. Of the 24 patients in which treatment was begun between the ages of 0-2 years, 15 improved, eight remained unchanged, and one deteriorated.

524. Karnes, Merle. *Staff Training in a University Setting (Emphasis on Parent Training)*. Austin, Texas: University of Texas, Program for Staff Training of Exemplary Early Childhood Centers for Handicapped Children, [1971]. 31 pp. (Staff Training Prototype Series Vol. II, No. 5.)

A brief overview is given on the PEECH (Precise Early Education of Children with Handicaps) Program in Illinois. "Among the distinguishing characteristics of the project are (1) a structured classroom program; (2) a training program for staff; (3) use of paraprofessionals; (4) broad community involvement; and (5) active family participation." Emphasis in this paper is on the last of these characteristics. "Basic to family participation in the PEECH Project is the 'ATSEM' Model. The letters in ATSEM stand for acqu[illegible], teach, support, expand, and maintain. These factors are individually explained as being stages of progression in the program with "the level and nature of involvement at each stage of the process" varying "with the needs of each individual." The process whereby a family is admitted, becomes integrated into, and actively participates in the program is discussed with aspects of the parent as teacher both at school and at home considered.

525. Karon, Myron; Imach, Daniel; and, Schwartz, Allen: "Effective Phototherapy in Congenital Nonobstructive Nonhemolytic Jaundice," *New England Journal of Medicine*, 282:377-380, Feb. 12, 1970.

Treatment and results of a newborn case are described in detail, and phototherapy is discussed.

526. Keats, Sidney. *Cerebral Palsy*. Foreword by Winthrop M. Phelps. Springfield, Illinois: Charles C. Thomas, 1965. 369 pp.

The concepts of cerebral palsy and its treatment are comprehensively presented. The author begins the text by reviewing the history and the definition of cerebral palsy. Topics discussed in Chapters II-IV include the incidence of cerebral palsy, etiological factors, anatomical and pathological aspects, modes of classification, types of cerebral palsy, and diagnosis. Methods of treatment are thoroughly described in Chapter V. Those methods discussed are orthopedic surgery; physical, speech, occupational, and drug therapy; and bracing. The team approach to treatment is stressed. Associated handicaps found in the cerebral palsied are the subject of Chapter VI. "Dressing Techniques for the Cerebral Palsied Child" are outlined in the appendix. Bibliographies are found frequently throughout.

527. Keen, J.H.: "Significance of Hypocalcaemia in Neonatal Convulsions," *Archives of Disease in Childhood*, 44:356-361, June, 1969.

One hundred infants, who had had convulsions during the first four weeks of life, were prospectively studied. Retrospective data on pregnancy, delivery, neonatal course, etc. was obtained, and tests done on the infants "after the first recorded fit" are described. The findings related to the etiology of the convulsions are discussed. Hypocalcemia was the most frequent causal factor. It was present alone in 34 infants, and in 4 infants it was combined with hypoglycemia. The hypocalcemic group was further analyzed by sex, age at first fit, seasonal incidence factors, gestational age, mode of delivery, feeding practices, maternal factors, characteristics of the convulsions, and prognosis. Fifteen of the hypocalcemic infants were followed to age one year. Three were found to be abnormal; two of the three had hypotonia.

528. Keith, Haddow M., and Gage, Robert P.: "Neurologic Lesions in Relation to Asphyxia of the Newborn and Factors of Pregnancy: Long-Term Follow-Up," *Pediatrics*, 26:616-622, Oct., 1960.

The literature is reviewed prior to the description of a follow-up study made on 321 children born after a prolonged labor, 180 children who had had asphyxia or respiratory delay at birth, 124 infants of mothers who had had toxemia of pregnancy, and 633 control children from uncomplicated deliveries. The children "were studied over periods of 1 to 14 years." It was concluded from the findings "that prolonged labor, asphyxia, or delayed respiration at birth did not cause any neurologic abnormality in children who survive the early months of life, and that convulsions of any type are not commoner among children who had difficulty at birth than among children who did not have difficulty at birth."

529. Kellaway, Peter, and Petersen, Ingemar, eds. *Clinical Electroencephalography of Children*. New York: Grune and Stratton, 1968. 332 pp.

This book contains the papers presented at an International Conference on this subject held at Goteborg, Sweden in 1967. The electroencephalogram in normal infants in various states is presented. Paroxysmal activity, and the diagnostic and prognostic application of the EEG to infants and children are among the areas considered.

530. Kellaway, Peter, and Petersen, Ingemar, eds. *Neurological and Electroencephalographic Correlative Studies in Infancy*. New York: Grune and Stratton, 1964. 364 pp.

Contained in this volume are the papers presented and the discussions which followed at a conference held in Houston in 1963. The concern of the conference was the "ontogenetic evolution of the electrical activity of the brain and the correlation of this evolution with morphological and behavioral development." Arrangement is according to the selected topics which are listed in the Preface.

531. Keller, P.J.; Bader, P.; Schmid, J.; Baertschi, U.; Gerber, C.; Soltermann, R.; and Kopper, E.: "Biochemical Detection of Fetoplacental Distress in Risk Pregnancies," *Lancet*, 2:729-731, Oct. 2, 1971.

Five methods of determining fetoplacental status were employed in 94 high risk pregnancies, and "results were correlated with the subsequent perinatal conditions of fetus and placenta in order to evaluate the predictive efficacy of the different parameters." The tests were urinary oestriol, placental loading with dehydroepiandrosterone sulphate, urinary pregnanediol, activity of human placental lactogen, and heat-stable alkaline phosphatase in the serum." The findings showed the determination of human placental lactogen activity to be the most accurate method. Procedures used and the results concerning all five methods are presented. "It was concluded that best monitoring is obtained by simultaneous use of at least two tests - preferably urinary oestriol and human-placental-lactogen activity."

532. Kendall, P. Hume, and Bissell, E.M.: "Analysis of Gait in Cerebral Palsy: Practical Difficulties and Possibilities," *Physiotherapy*, 51:208-213, July 10, 1965.

The following methods of assessing gait in the cerebral palsied patient are discussed with the advantages and disadvantages of each method mentioned: cinephotography, still photography, measurement of muscle power, measurement of muscle tone, measurement of limitations of joint range, balance reactions, foot posture, gait measurements, and perception.

533. Kenney, W.E.: "The Importance of Sensori-Perceptuo-Gnosia in the Examination, the Understanding, and the Management of Cerebral Palsy," *Clinical Orthopaedics and Related Research*, 46:45-52, May-June, 1966.

The literature in this area is reviewed. Under 10 listed points, "the main features of defects of the sensori-perceptuo-gnosias, their relationship to cerebral palsy and their importance to intelligent management of the disturbance" are discussed.

534. Kereny, Thomas D.; Falk, Stephen; Mettel, Richard D.; and, Walker, Barbara: "Acid-Base Balance and Oxygen Saturation of Fetal Scalp Blood during Normal and Abnormal Labors," *Obstetrics and Gynecology*, 36:398-404, Sept., 1970.

Acid-base status and oxygen saturation of fetal scalp blood were determined with methods described in 33 patients during labor in order to correlate results with the status of the neonates, determined by Apgar scores. Results are presented and statistically analyzed in the following categories: "(1) normal labors and vigorous newborns (12 cases); (2) complicated labors and vigorous newborns (12 cases); and (3) complicated labors and depressed newborns (9 cases)." The pH of the fetal scalp blood was found to yield "the most significant information regarding fetal well-being."

535. Kershaw, John D.: "Indications for Residential Treatment," *Developmental Medicine and Child Neurology*, 5:35-41, Feb., 1963.

The author believes there is "only one absolute and universally valid indication" for a brain damaged child to receive residential treatment, and that is when such a child "has no home." In all other cases the determination should be made on an individual basis. Because it is impossible to consider the normal ages at which various developmental stages will be reached in brain damaged children, four "developmental phases" are outlined beginning at birth. Possible treatment arrangements are presented for each phase. The author, when considering treatment in Phase 1, (birth to six or seven years in the handicapped child) suggests special conditions under which residential treatment might be preferred.

536. Khazin, Aida F., and Hon, Edward H.: "Biochemical Studies of the Fetus. IV. Fetal-Maternal pH and Base Deficit Difference Versus Apgar Scores," *Biology of the Neonate*, 18:225-242, 1971. (Series: For I see #465, II see #464, III see #537.)

In order to determine the "correlation of the pH and base deficit differences of blood obtained from the fetal scalp and maternal arteries and Apgar scores at 1 and 5 min.," 538 fetal-maternal pH differences were obtained from 88 mothers and fetuses, and 1 and 5 minute Apgar scores were determined. Procedures, much resulting data, and conclusions are described. "When low F-M (fetal-maternal) pH and base deficit differences are present, there is a good probability of a higher Apgar score. However, the converse is not true since errors may range up to 56.2 and 94.5% with F-M pH and base deficit differences, respectively."

537. Khazin, Aida F.; Hon, Edward H.; and Quilligan, Edward J.: "Biochemical Studies of the Fetus. III. Fetal Base and Apgar Scores," *Obstetrics and Gynecology*, 34:592-609, Oct., 1969. (Series: For I see #465, II see #464, IV see #536.)

Fetal base determinations were correlated with 1 and 5 minute Apgar scores in 194 parturients in order to test the value of these determinations "as predictors of neonatal condition." Procedures are described and results are presented in histograms and explained. "Correlation coefficients for fetal base deficit and Apgar score were not good, except for low 5-min. Apgar scores." It is felt that this "may be attributed to the long time between fetal blood sampling and delivery as well as the FHR (fetal heart rate) pattern present when the samples happened to be taken."

538. Kimmel, Carole A.; Wilson, James G.; and Schumacher, Herbert J.: "Studies on Metabolism and Identification of the Causative Agent in Aspirin Teratogenesis in Rats," *Teratology*, 4:15-24, Feb., 1971.

In order "to determine the possible site(s) of teratogenic action of aspirin and to identify the causative agent, whether aspirin, salicylic acid, or some other of the possible metabolities," pregnant Wistar rats were treated on the 9th, 10th, or 11th day of gestation "with 250, 500, 750, or 1000 mg/kg aspirin." Fetuses were examined on the 20th gestational day as described. "A teratogenic dose-response relation at each treatment time, but a decreased overall embryonic susceptibility as treatment was applied later in gestation" was found. "The types of abnormalities produced generally correlated with the state of development at the time of treatment." Predominant abnormalities with aspirin administered on the 9th day were of CNS, skeleton, and ventral body wall; on the 10th day were of the heart and brain; and on the 11th day were of the hindlimb, tail, and kidney. When benzoic acid was given as described before aspirin was administered, there was "a significant increase in percentage of malformations above effects observed after 250 or 500 mg/kg aspirin alone." Described experiments indicated "that salicylic acid is the causative agent in aspirin teratogenesis, and that its concentration and persistence can be influenced by a common environmental agent, benzoic acid." Possible implications for man are discussed.

539. Kintzel, H.W.; Hinkel, G.K.; and Schwarze, R.: "The Decrease in the Serum Bilirubin Level in Premature Infants by Oratic Acid," *Acta Paediatrics Scandinavica*, 60:1-5, Jan., 1971.

When 102 premature infants were treated as described from the first to the sixth day of life with oratic acid, and 102 other premature control infants were not treated, "the average values of the total and of the indirectly reacting bilirubin are distinctly lower in the oratic acid group from the 3rd-6th day of life." Four of the treated infants and 30 of the untreated infants required exchange transfusions. "The question of eventual side effects and the supposed mode of action of the oratic acid are discussed."

540. Kirschbaum, Thomas H.: "Diagnosis of Fetal Distress," *Obstetrics and Gynecology*, 34:721-727, Nov., 1969.

Defining "fetal distress" is discussed, and two approaches from which the problem can be investigated are described--the empirical and the academic. Urgent needs are listed.

541. Kittrich, M.; Polacek, J.; and Janovsky, M.: "The Osmolality of the Amniotic Fluid and Its Relation to the Asphyxia of the Newborn," *Biology of the Neonate*, 17:10-14, 1971..

The osmolality of the amniotic fluid of 126 cases in labor was compared to the state of the newborn. Sixty-eight cases of hypotonic amniotic fluid and 58 cases of hypertonic amniotic fluid were detected as defined. Both neonatal asphyxia and "maternal pathological states," such as diabetes, prolonged pregnancy, and late toxemia were found to occur three times as frequently in the group having hypertonic amniotic fluid.

542. Klatskin, Ethelyn H.; McGarry, Mary E.; and, Steward, Margaret S.: "Variability in Developmental Test Patterns as a Sequel of Neonatal Stress," *Child Development*, 37:819-826, Dec., 1966.

Compared with regard to developmental test results were 22 infants who were considered normal, as defined, at birth and 21 infants who were considered "potentially stressed" but in whom no definite CNS deficit had been found in the first year of life. The cases were from the Yale Unit of the Collaborative Project on Cerebral Palsy and Mental Retardation. Methods of selection for the study reported are described as are statistical analyses of results. Although no differences between the groups on test results were revealed at age 3-4 months, "at 6-7 months of age, the suspect infants were significantly more variable in performance in the Adaptive, Fine Motor, Gross Motor and Observed Language test areas." It is suggested on the basis of the findings "that as far as developmental testing is concerned, it is easier to detect the effects of neonatal stress within the latter half of the first year of life than within the first half."

543. Klatskin, Ethelyn Henry: "Relationship of Deficits in Intelligence Test Performance of Preschool Children to Perinatal Experience," *Journal of Consulting Psychology*, 28:228-233, June, 1964.

Intelligence tests were administered as described to 193 normal healthy children at three years of age and to 119 of these children at five years of age, and results were related to perinatal experiences, as defined. The children were grouped according to intelligence into an average and a superior group, and according to perinatal experiences into three groups: unstressed, suspect, and presumably stressed. Results are presented in tables and discussed. "It is concluded that isolated deficits on complex verbal and visuomotor tasks may be indicative of minimal brain injury and that such injury is more observable among average than superior children."

544. Klieger, Jack A.: "The Rh Factor: Past, Present, and Future," *Medical Clinics of North America*, 53:1063-1084, Sept., 1969.

Reviewed are developments concerning the identification of blood groups, the Rh factor, transfusion reactions, erythroblastosis fetalis, the discovery of Rh antigens, and "practical considerations in the management of the Rh-negative mother," including Rh antibody titers, amniocentesis, intrauterine transfusion, and "Rho GAM."

545. Knapp, Miland E.: "Cerebral Palsy," *Postgraduate Medicine*, 47:229-232, Feb., 1970; 247-252, Mar., 1970.

In the first portion of this two-part article, the condition of cerebral palsy is described, and the aspects of classification, etiology, and diagnosis are briefly described. Numerous methods of treatment are considered in the second portion, with educational centers and vocational training mentioned.

546. Knapp, Robert C.; Shapiro, Arthur; and Reading, Paul E., Jr.: "Maternal Heart Volume and Prematurity," *American Journal of Obstetrics and Gynecology*, 105:1252-1260, Dec. 15, 1969.

Previous studies in this area are mentioned. The cases of 500 pregnant women were analyzed and their heart volumes were determined for the purpose of assessing the usefulness of this method as a screening procedure for predicting prematurity. Methods of determining the absolute and relative heart volumes are described as are the effect of each on the birth weights and gestational ages of the infants. Also reported are the attempts made to correlate maternal heart volume with toxemia, anemia, maternal age, and race. Although a trend was present, no statistical correlation was found between maternal heart volume (absolute and relative) and birth weight. Also no correlation was found between maternal heart volume and gestational age. Therefore, no value for predicting prematurity was revealed by using this method.

547. Knobloch, Hilda, and Pasamanick, Benjamin: "The Developmental Behavioral Approach to the Neurologic Examination in Infancy," *Child Development*, 33:181-198, March, 1962.

The theoretical background to this approach is presented, and this approach to neurological assessment is contrasted with the classic neurological examination in infancy. The Gesell Developmental Examination is discussed with data presented that confirm its validity, its reliability, and its capability "of eliciting responses in those areas of behavior that are abnormal." In regard to this last quality, a detailed study is described which confirms this feature of the Examination. Several important points to be considered when evaluating "deviations from normal neuropsychologic functioning in infancy" are listed in the Summary.

548. Knobloch, Hilda, and Pasamanick, Benjamin: "Environmental Factors Affecting Human Development Before and After Birth," *Pediatrics*, 26:210-218, Aug., 1960.

Data was collected on "500 premature infants and 492 full-term matched controls" in order to study the relationship between socioeconomic variables and "pregnancy experience and later neuropsychiatric functioning." This latter integrity was determined in these infants at approximately 40 weeks of age by the Gesell Developmental Examination. It was found "that the amount of neurologic and intellectual damage increases as the birth weight decreases." "Pregnancy experience, birth weight and later physical status were the only major factors which could explain group differences in developmental quotients." Results also "indicated that the relatively small amount of variability found in infancy could be explained largely by the presence of damage to the central nervous system."

549. Knobloch, Hilda; Pasamanick, Benjamin; and Sherard, Earl S., Jr.: "A Developmental Screening Inventory for Infants," *Pediatrics*, 38:1095-1108, Dec., 1966.

The "criteria for an adequate screening device" are explained, and the Developmental Screening Inventory (DSI) is described. "It consists of selected items from the Gesell Developmental Schedules in each of the five fields of adaptive, gross motor, fine motor, language, and personal-social behavior at 4-week intervals from the ages of 4 to 56 weeks and at 15 and 18 months." Two methods used to test the Inventory and the results obtained from the tests are presented. Included is a copy of the inventory along with instructions on its administration.

550. Knobloch, Hilda; Sotos, Juan F.; Sherard, Earl S., Jr.; Hodson, W. Alan; and Wehe, Robert A.: "Prognostic and Etiologic Factors in Hypoglycemia," *Journal of Pediatrics*, 70:876-884, June, 1967.

Seventy-one patients with hypoglycemia were followed as to developmental outcome. The group was subdivided into Group I consisting of those with neonatal hypoglycemia having either diabetic (9) or nondiabetic (26) mothers, Group II comprising those having postneonatal symptomatic hypoglycemia (27), and Group III who had postneonatal asymptomatic hypoglycemia (9). The patients, except for those of diabetic mothers, were found to have high percentages of CNS abnormalities including seizures, intellectual impairments, and motor deficits. Also studied were other factors present in the group which could be associated with the CNS manifestations, and with the hypoglycemia, such as paranatal complications, low birth weight, congenital malformations, etc. Interpretations as to etiology are presented.

551. Knott, Margaret: "Introduction to and Philosophy of Neuromuscular Facilitation," *Physiotherapy*, 53:2-5, Jan. 10, 1967.

The terms in the name, "proprioceptive neuromuscular facilitation" are described and defined, the basic principles of this treatment method are outlined, and the philosophy of the method is discussed.

552. Knott, Margaret, and Voss, Dorothy E. *Proprioceptive Neuromuscular Facilitation; Patterns and Techniques*. Illustrations by Helen Drew Hipshman and James B. Buckley. Foreword by Sedgwick Mead. 2nd ed. New York: Harper and Row, Hoeber Medical Division, 1968.

Described and illustrated in this book are the individual patterns and techniques of facilitation used in this approach to treatment. These individual procedures are then combined to teach the patient how to perform a "total pattern" of movement such as rolling or walking. Techniques to be used in transfer and self-help activities and techniques to stimulate related functions such as respiration, swallowing, etc. are also demonstrated. There is a unit devoted to presenting suggestions for evaluation and program planning. A suggested reading list and reference tables make up the final two units.

553. Knox, E.G., and Mahon, D.F.: "Evaluation of 'Infant at Risk' Registers," *Archives of Disease in Childhood*, 45:634-639, Oct., 1970.

A detailed study in two parts is described in which At Risk Registers were evaluated by studying the "linkages between registers permitting an early prediction of risk, and registers recording the later existence of handicap" in Birmingham, England. It is recommended on the basis of results that the At Risk Registers "should be withdrawn or should be redesigned to the different purposes of registering the known handicapped, and extending the developmental surveillance to all children, rather than concentrating it upon a few."

554. Koch, Carl A.: "Hyperbilirubinemia in Premature Infants: A Follow-Up Study. II," *Journal of Pediatrics*, 65:1-11, July, 1964.

Serial serum bilirubin levels were previously determined in one hundred consecutive premature infants. The treatment of those infants, including the admimistration of Vitamin K, is described. Sixty-eight of these patients were examined at seven years of age in order to assess "the relationship of hyperbilirubinemia in premature infants to the subsequent development of neurologic disorders." Examination results with respect to general health, urinalysis, dental examination, psychometric evaluation, eye defects, hearing impairments, electroencephalography, and neurological abnormalities are reported. Twenty-two per cent of the children having had serum bilirubin concentrations over 20 mg./100 ml. were revealed to have brain damage while "no major neurologic abnormalities, exclusive of mental retardation" were detected in those children having had concentrations below that level.

555. Koenigsberger, M. Richard: "Judgment of Fetal Age. I. Neurologic Evaluation," *Pediatric Clinics of North America*, 13:823-833, Aug., 1966. (Series: For II see #974, III see #685.)

The fact that the problems of the premature infant "appear to be" different from the problems of the 'small-for-dates' infant is stated. The neurologic examination and the electroencephalographic examination are described as "the two simplest and best worked out methods for judging fetal age by neurologic means." With regard to the neurologic exam, the limitations of this method are described, terms are defined, and the aspects of evaluating muscle tone and eliciting reflexes are discussed. A chart entitled, "Findings on Neurologic Examination at Various Fetal Ages," is presented. With regard to the electroencephalographic exam, charts are presented and explained to show differences seen in the electroencephalogram at various fetal ages.

556. Kohorn, Ernest I.; Pritchard, James W.; and Hobbins, John C.: "The Safety of Clinical Ultrasonic Examination; Electroencephalographic Examination of the Neonate Subjected to Pulsed Ultrasound," *Obstetrics and Gynecology*, 29:272-274, Feb., 1967.

The diagnostic uses of pulsed ultrasound are briefly mentioned, and an investigation to determine if "abnormal cerebral electrical activity might be associated with exposure to diagnostic ultrasound" is described. When electroencephalographic recordings were taken from 20 newborns exposed to ultrasound, "no change in electroencephalographic pattern was demonstrable."

557. Komich, M. Patricia, and Noyes, Nancy L.: "Occupational Therapy and Cerebral Palsy." Paper prepared for the Symposium on "Cerebral Dysfunction: A Treatment Program for Young Children," *Clinical Pediatrics*, 5:355-357, June, 1966.

The authors' methods of developing and integrating fine motor skills in infants and preschool age children as part of the program at the Meeting Street School, Providence, R.I. are described.

558. Kong, Elisabeth: "Very Early Treatment of Cerebral Palsy," *Developmental Medicine and Child Neurology*, 8:198-202, Apr., 1966.

The beneficial aspects of early diagnosis and early treatment are shown in this report on the treatment of 69 cerebral palsied infants. Treatment consisted of inhibiting tonic reflex activity and usage of methods developed by the Bobaths. Because of the difficulties involved in early diagnosis, monthly neurological examinations are suggested for "at-risk" and "suspected" babies.

559. Korner, Anneliese F., and Brobstein, Rose: "Visual Alertness as Related to Soothing in Neonates: Implications for Maternal Stimulation and Early Deprivation," *Child Development*, 37:867-876, Dec., 1966.

For the purpose of exploring the relations between soothing and visual alertness, 12 healthy neonates were picked up, using a set procedure, while crying. Incidences of alerting and scanning were recorded for 30 seconds after this process. Results reflect significant differences between positions in alerting and scanning. When the infants were put to the shoulder, they stopped crying, became alert, and scanned. Implications are discussed, especially with regard to the beneficial effects of early stimulation.

560. Korones, Sheldon B.; Todaro, Jane; Roane, Jourdan A.; and Sever, John L.: "Maternal Virus Infection After the First Trimester of Pregnancy and Status of Offspring to 4 Years of Age in a Predominantly Negro Population," *Journal of Pediatrics*, 77:245-251, Aug., 1970.

As part of the Collaborative Perinatal Study "antibody titers in paired sera from 4,930 pregnant women were determined for influenza A, cytomegalovirus, herpes simplex, and mumps." One hundred and fourteen of these women showed evidence of infection, as defined by one of these four viruses. The mothers were then matched with similar mothers demonstrating no signs of such infection. No significant differences between the two groups of offspring were noted with respect to (1) neurological abnormalities either as neonates or at age 1 year, (2) IQ at age 4, (3) birth weight, or (4) weight and body measurements at age 1. Numerous other studies are mentioned.

561. Kramer, Lloyd I.: "Advancement of Dermal Icterus in the Jaundiced Newborn," *American Journal of Diseases of Children*, 118:454-458, Sept., 1969.

One hundred eight full term and 40 low birth weight icteric newborn infants were observed. Methods are described. A direct relationship was found in the majority of both full term and low birth weight infants "between serum bilirubin concentration and cephalopedal progression of dermal icterus." With limitations noted, on the basis of these results, it is suggested that examination of the skin "may provide useful information" on serum bilirubin levels in newborns.

562. Kron, Reuben E.: "Studies of Sucking Behavior in the Human Newborn: The Predictive Value of Measures of Earliest Oral Behavior," in *Second Symposium on Oral Sensation and Perception*, edited by James F. Bosma. Springfield, Illinois: C. C. Thomas, 1970, Chapter 13, pp. 234-241.

Results from studies on the sucking behavior of neonates are described. It is suggested that measurement of sucking behavior, as developed by the author, may be a method for the early diagnosis of brain dysfunction and may help to better determine causal factors in brain disorders.

563. Kubli, Fred, and Berg, Dietrich: "The Early Diagnosis of Foetal Distress," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 72:507-512, Aug., 1965.

The methods and results of two studies are reported. In the first amniocentesis and amnioscopy were employed to detect fetal distress "before rupture of the membranes and before the onset of labour." In the second study fetal blood was sampled and analyzed after the membranes had ruptured to determine the fetal acid-base balance.

564. LaBan, Myron M.; Baer, Robert D.; and Johnson, Ernest W.: "Superficial Abdominal Reflex in Cerebral Palsy," *Archives of Physical Medicine and Rehabilitation*, 49:163-166, Mar., 1968.

When the abdominal skin reflex was tested as described in 111 cerebral palsied children, the reflex "was found to be present in both the child with prenatal spastic cerebral palsy and in the child with nontension athetosis" but was absent in the child with postnatal spastic cerebral palsy and in the child with tension athetosis." Implications are considered. "The authors conclude that the presence or absence of abdominal reflexes in the spastic cerebral palsy may be helpful in the determination of the time of cerebral injury."

565. Lagos, Jorge C., and Siekert, Robert G.: "Intracranial Hemorrhage in Infancy and Childhood," *Clinical Pediatrics*, 8:90-97, Feb., 1969.

Reviewed in this article are: "(1) intracranial hemorrhage in neonates and (2) intracranial hemorrhage in infants and children." Both of these classifications are subdivided into the major anatomic regions from which the bleeding may occur: intracerebral, intraventricular, subarachnoid, subdural, etc. Each of these types of hemorrhage are then considered for both groups with respect to incidence, symptoms, and prognosis. Frequently included are remarks concerning pathogenesis, diagnosis, and treatment.

566. Lamb, Douglas W., and Pollock, G.A.: "Hip Deformities in Cerebral Palsy and Their Treatment," *Developmental Medicine and Child Neurology*, 4:488-498, Oct., 1962.

The need for attempting to prevent such deformity by early and regular physiotherapeutic treatment is stressed. Explained are the various types of hip deformities seen in cerebral palsy and the surgical treatment methods used in 200 cases of cerebral palsy where hip deformity was present. The three stages at which surgery might be necessary in such cases are listed in the "Summary."

567. Langdon, Margaret: "Philosophy of Operation and Medical Policy of the Meeting Street School." Paper prepared for the Symposium on "Cerebral Dysfunction: A Treatment Program for Young Children," *Clinical Pediatrics*, 5:345-348, June, 1966.

Included in this brief description of this School are the "basic principles of operation" and the "steps in the diagnostic work up" at the School. The diagnosis and treatment of the young handicapped child on an outpatient basis and the team approach are elements stressed at this Center.

568. Larks, Saul D.; Webster, Augusta; and Larks, Golda G.: "Quantitative Studies in Fetal Electrocardiography. I. Prenatal Prediction of the Condition of the Infant at Birth (Apgar Rating)," *American Journal of Obstetrics and Gynecology*, 98:52-55, May 1, 1967.

A preliminary report of a statistical method devised to predict prenatally the condition of the infant at birth is presented. Multiple linear regression is the statistical technique used.

569. Latham, Michael C., and Cobos, Francisco: "The Effects of Malnutrition on Intellectual Development and Learning," *American Journal of Public Health*, 61:1307-1324, July, 1971.

The incidence of protein-calorie malnutrition, animal and human studies, the relationship of malnutrition to mental retardation, the effect of an adverse social environment, and "the effect of malnutrition on school performance" are discussed. Described in some detail is a research study begun in Bogota, Columbia in 1968, the main objective of which is "to investigate whether malnutrition early in life has an effect on subsequent psychological development and mental functioning, and if so to describe and quantitate that effect." "A new hypothesis concerning the role of malnutrition in retarded intellectual development" is then offered in which it is proposed "that the poor performance of many previously malnourished children is not due to pathological changes in the central nervous system, but results from the fact that a calorie deficiency has restricted the activities and learning opportunities of the child."

570. Lehman, Carol H.: "Play Therapy for the Hemiplegic Child," *Physical Therapy*, 48:1395, Dec., 1968.

Described and pictured is the activity of "going fishing." Use of the "velcro" strap around the forearm puts the child's arm "through functional range." Needed materials are listed.

571. Lenard, H.G.; von Bernuth, H.; and Prechtl, H.F.R.: "Reflexes and Their Relationship to Behavioural State in the Newborn," *Acta Paediatrica Scandinavica*, 57:177-185, May, 1968.

Described is a study in which 14 reflexes of different modalities were tested in random order on 20 healthy newborns during the behavioral states of "regular sleep," "irregular sleep," "quiet wakefulness," and when feasible, while sucking. The techniques of testing, the scoring, and the results are given for each reflex. Conclusions are presented, and implications for the clinical neurological examination of the neonate are discussed.

572. Lending, Miriam; Slobody, Lawrence B.; and Mestern, Joan: "The Relationship of Hypercapnia to the Production of Kernicterus," *Developmental Medicine and Child Neurology*, 9:145-151, April, 1967.

A study was conducted to examine the relationship of hypercapnia combined with hyperbilirubinemia to the production of kernicterus in puppies. Gross evidence of kernicterus was seen in the puppies under nine weeks of age when hyperbilirubinemia was induced in association with hypercapnia. The induction of hyperbilirubinemia alone did not produce this evidence.

573. Lennon, G. Gordon: "Obstetrical Features Related to Cerebral Palsy," *Cerebral Palsy Bulletin*, 2:68-73, 1960.

The physiological and pathological aspects of fetal anoxia and its relationships with placental insufficiency, analgesia, anesthesia, and cerebral birth trauma are considered. Because of an earlier finding (Walker, 1953) that the fetal oxygen supply is often severely depleted in pregnancies lasting 42 or more weeks, labor was induced in 2,770 patients "by rupture of the forwaters 5 days after the expected day of delivery." The encouraging results are reported.

574. Lentz, William E., and McCandless, Geary A.: "Averaged Electroencephalic Audiometry in Infants," *Journal of Speech and Hearing Disorders*, 36:19-28, Feb., 1971.

The hearing of two groups of infants was tested at ages 1, 3, 6, and 12 months using averaged electroencephalographic audiometry (AEA). Normal infants comprised the first group, and the second group "was subdivided into those with birth weights of less than 1500 grams (high risk group) and those weighing from 1500 to 2500 grams (pre-term group). Procedures are described. At age 1 month "the normal group's lowest response level averaged 43 dB HL, whereas the pre-term and high risk group's mean response level was approximately 16 dB higher." By three months of age the response level of the pre-term group was down to approximately the unchanged level of the normal group, and by age "six months, the average response level for the high risk infants was also lower." Behavioral difficulties and lack of high risk subjects at age 12 months made comparisons impossible at this age. "We do not know whether the inability to obtain responses at low hearing levels is due to procedural problems entirely or in part due to immature neurological development beyond the peripheral auditory process." Telemetry was used in some recordings and is compared to conventional recordings. Also compared is behavioral test results and AEA.

575. Leslie, Loren: "Prematurity as an Etiologic Factor in Cerebral Dysfunction," *Archives of Physical Medicine and Rehabilitation*, 47:711-714, Nov., 1966.

Studies of the incidence of prematurity in the normal population and in people having cerebral dysfunction are reviewed as are the "causes and correlates" of prematurity. Also considered are studies concerned with the consequences of prematurity and studies on "the neurologic and behavioral development of the human fetus."

576. Lesny, I.; Vojta, V.; and Jelinek, V.: "Pituitary Implantation in Cerebral Palsied Children," *Cerebral Palsy Bulletin*, 2:167-169, 1960.

Preserved bovine pituitary glands were implanted under the abdominal skin in 84 children, ages 18 months to 5 years. Sixty-five of these children had cerebral palsy and 19 had other "related conditions." After four weeks the children, having had no other treatment, were rated as being "improved" (22.5%), "mildly improved" (53.5%) or "not improved." (The best results were obtained in cases of hypotonia.) The hormonal activity of these glands was analyzed. Thyrotrophic growth and luteotrophic hormones were found. It is concluded that one or all three of these "can accelerate the delayed development of the central nervous system in cerebral palsied children."

577. Lesser, A.J. *Maternity and Infant Care in Low-Income Families; A Progress Report.* Washington, D.C.: United States Department of Health, Education, and Welfare. Children's Bureau, 1968.

This report describes Federally financed medical care programs focused on high risk maternity patients. Statistics from several studies are presented to show the high rate of infant mortality, morbidity, prematurity, lack of prenatal care, etc. that was present in major cities prior to the enactment of these programs. A reduction in these statistics has been noted since 1966 in areas having large maternity, infant care, and family planning programs. It is necessary for these programs to be designed to recognize the close interrelationship among health, social, and environmental problems. Recent Federal acts are expected to further reduce the disparities in maternal care and infant mortality rates between the income classes of our society.

578. Levitt, Sophie: "Proprioceptive Neuromuscular Facilitation Techniques in Cerebral Palsy," *Physiotherapy*, 52:46-51, Feb. 10, 1966.

Reasons for the lack of use of this treatment method in Britain are listed. Topics discussed in relation to this theory include the cooperation of the child, movement patterns in cerebral palsy, replacement of these movement patterns first by normal primitive patterns and later by more mature patterns, increasing the range of movement, "practical points" relating to proprioceptive neuromuscular facilitation, and functional training of the patient. Four ways in which "P.N.F." can be of value in the treatment of cerebral palsy are listed: "to counteract deformities," "to obtain greater efficiency of movement," "to train not only individual muscles but also their action in functional synergies" and "to aid in the building up of motor skills." Numerous theories and treatment methods of others are mentioned.

579. "Lewis Lipsitt and His Mobiles," *Brown Alumni Monthly*, March, 1969.

In this article is described the work on infant and child development and behavior done by Dr. Lewis Lipsitt and his colleagues at the Child Study Center at Brown University, Providence, R.I. The projects conducted grew out of the involvement of the Providence Lying-In Hospital in the National Collaborative Project.

580. Liden, Gunnar, and Kankkunen, Aira: "Visual Reinforcement Audiometry in the Management of Young Deaf Children," *International Audiology*, 8:99-106, Feb., 1969.

This method is described, its successful usage in the testing of hearing in both normal and hard of hearing preschoolers is discussed, and its usefulness as "a successful technique in hearing aid evaluation on young hard of hearing children" is noted.

581. Liley, A.W.: "Diagnosis and Treatment of Erythroblastosis in the Fetus," in *Advances in Pediatrics*, Volume XV. Edited by S. Z. Levine. Chicago: Year Book Medical Publishers, 1968. pp. 29-63.

"Antibody investigations" are discussed as being the initial test in making a diagnosis of erythroblastosis in the fetus. Methods of making an intrauterine diagnosis are then listed and discussed. Much attention is given to the "individual constituents of amniotic fluid which are potentially useful in clinical management." Conditions for and techniques for intrauterine transfusion of the fetus are explained as are the advantages and disadvantages of using open procedures in the transfusion.

582. Liley, A.W.: "Intrauterine Transfusion of Foetus in Haemolytic Disease," *British Medical Journal*, 11:1107-1109, Nov. 2, 1963.

In this "Preliminary Communication" a case treated successfully in this manner is presented, and the use of this method in three other cases is mentioned. The importance of amniotic fluid analysis in the discovery of such cases is emphasized.

583. Liley, A.W.: "The Use of Amniocentesis and Fetal Transfusion in Erythroblastosis Fetalis," *Pediatrics*, 35:836-847, May, 1965.

The procedures of amniotic fluid analysis by abdominal amniocentesis and "fetal transfusion by the percutaneous intraperitoneal method" are discussed and the clinical experience of the author with the latter method is described. A "Discussion" follows the article.

584. Lindon, Robert L.: "Risk Register," *Cerebral Palsy Bulletin*, 3:481-487, 1961.

Three methods of detecting defects in childhood and infancy are considered. These are "the symptomatic, the total population screening, and the screening of the 'at risk' group." The third method is elaborated upon and is recommended for the earlier detection of cerebral palsy, visual and hearing defects, etc. The etiological categories to be included on a "Risk Register" are briefly outlined. Necessary "administrative and practical arrangements" are discussed as are the most important sources of information concerning cases for inclusion on such a register.

585. Lin-Fu, Jane S.: "Childhood Lead Poisoning; an Eradicable Disease," *Children*, 17:2-9, Jan.-Feb., 1970.

The consequences, including neurological sequelae, and the incidence of lead poisoning are considered. Factors that contribute to the persistence of this problem are discussed, including the lack of public awareness, poor housing conditions and housing codes, etc. Possible "steps to eradication" and several voluntary group action projects are described. Six steps to be taken to control and prevent lead poisoning and six research needs are listed.

586. Lin-Fu, Jane S.: "New Hope for Babies of Rh Negative Mothers," *Children*, 16:23-27, Jan.-Feb., 1969.

The Rh factor and hemolytic disease are described, early research in the area is discussed, and the development and preventive use of Rh immunoglobulin are explained. Two studies concerned with Rh immunoglobulin and the implications of its use are considered.

587. Litchman, Henry M.: "Early Orthopedic Examination of the Child with Cerebral Dysfunction." Paper prepared for the Symposium on "Cerebral Dysfunction: A Treatment Program for Young Children," *Clinical Pediatrics*, 5:341-343, June, 1966.

The role of the orthopedist with respect to prevention and the value of early orthopedic treatment are emphasized. Common orthopedic symptoms of cerebral dysfunction revealed in the routine pediatric examination are considered. The various assessments made by the orthopedist, upon referral, and his philosophy of treatment are described.

588. Little, Brian; McCutcheon, Elgin; and Desforges, Jane F.: "Amniocentesis and Intrauterine Transfusion in Rh-Sensitized Pregnancy," *New England Journal of Medicine*, 274:332-335, Feb. 10, 1966.

Amniocentesis, interpretation of its results, "indications for intrauterine transfusion," and the process of intrauterine transfusion are discussed.

589. Lockman, Lawrence A.: "Neurologic Assessment in the First Year of Life," *Postgraduate Medicine*, 50:80-85, July, 1971.

"Four distinct examinations usually performed simultaneously," which in addition to a history, comprise early neurologic assessment are individually considered. These are the "general physical examination," the "estimation of development," the "neurologic examination," and the "examination of the special reflexes of infancy." The Denver Developmental Screening Test is discussed in regard to developmental estimation, features to be examined are described in the discussion of the neurologic examination, and the types of reflex abnormalities and the "diagnostically useful reflexes" are listed and explained when this area to be examined is considered.

590. Logan, William J., and Bosma, James F.: "Oral and Pharyngeal Dysphagia in Infancy," *Pediatric Clinics of North America*, 14:47-61, Feb., 1967.

Considered are the "etiology of infant oral and pharyngeal dysphagia," the normal suckle and swallow mechanisms, and the evaluation, the treatment, and the prognosis of the dysphagic infant. Separately discussed are evaluative procedures which include the clinical history, the physical examination, auscultation of the pharynx, and radiological methods.

591. Lorincz, Albert G.: "Danger Signs in the First Stage of Labor," *Hospital Medicine*, 6:115-118, 121-123, 126-127, 130-131, Sept., 1970.

Several "danger signs" in labor are individually discussed with emphasis placed on treatment to reduce the possibilities of mortality and morbidity. The dangers considered are abnormal labor, including cervical resistance, dysfunctional labor, hypotonic labor, hypotonic uterus, and malpresentation; intrapartum hemorrhage, including persistent vaginal bleeding and uterine rupture; fever; fetal distress, including heart rate abnormalities, cord prolapse, and extremity prolapse; and shock. Numerous drawings supplement the text.

592. "Low Birth Weight - A High Risk Factor?," *Journal of the American Medical Association*, 195:1:35-36, Jan. 3, 1966.

Investigators at John Hopkins University, after following "more than 400" low birth weight children and their controls since 1952, have found that although most of those of low birth weight are normal, "the most common deficit...has been neurologically based." Procedures of the study are explained. All children were examined at birth, at 40 weeks of age, and regularly thereafter. Numerous results are summarized.

593. Low, J.A.; Boston, R.W.; and Pancham, S.R.: "The Role of Fetal Heart Rate Patterns in the Recognition of Fetal Asphyxia with Metabolic Acidosis," *American Journal of Obstetrics and Gynecology*, 109:922-929, Mar. 15, 1971.

Three characteristics of fetal heart rate, monitored in 100 obstetric patients during "the last two hours of labor" were studied to determine their value in indicating fetal asphyxia with metabolic acidosis. The characteristics studied were "the frequency pattern of total decelerations, base-line fetal heart rate, and the frequency pattern of late decelerations." Observations are reported. No one feature revealed the presence of fetal asphyxia with metabolic acidosis. But it is felt that careful, uninterrupted study of fetal heart rate patterns by a capable staff should identify the condition and will provide a means of assessing when a fetal blood acid-base measurement is indicated.

594. Lubchenco, Lulu O., and Bard, Harry: "Incidence of Hypoglycemia in Newborn Infants Classified by Birth Weight and Gestational Age," *Pediatrics*, 47:831-838, May, 1971.

A random sample of 374 infants, born at the University of Colorado Medical Center "were classified by birth weight and gestational age into nine categories" and studied as described to determine the incidence of hypoglycemia. Also described is the procedure used in the collection and study of blood samples. Results regarding blood glucose levels determined in the infants in the nine categories are reported. "SGA (small for gestational age) infants gave the highest incidence of hypoglycemia, with preterm AGA (appropriate for gestational age) infants being next." "Evidence of IUGR (intra-uterine growth retardation from the physical examination and confirmed by the weight) length ratio was demonstrated in infants who became hypoglycemic." "An added stress in the form of birth hypoxia was present in the majority of the infants who became hypoglycemic."

595. Lucey, J.F.; Hibbard, E.; Behrman, R.E.; Esquivel de Gallardo, F.O.; and Windle, W.F.: "Kernicterus in Asphyxiated Newborn Rhesus Monkeys," *Experimental Neurology*, 9:43-58, Jan., 1964.

Methods and results of a study are presented in which the brains of two groups of monkeys were examined as described. The first group consisted of 14 monkeys who were delivered by Cesarean section and in whom hyperbilirubinemia was experimentally induced as described. A second group of six monkeys were delivered by Cesarean section, asphyxiated and resuscitated at birth after which hyperbilirubinemia was also experimentally induced. Clinical and pathological findings, including photographs of brain specimens, are reported. "Slight lethargy but no other clinical neurological signs and no kernicterus were seen" in the first group of nonasphyxiated monkeys. The second group, containing the asphyxiated monkeys, "exhibited neurological deficits clinically, with abnormal EEG, and had kernicterus." "Probably asphyxia is only one of several agents causing cellular injury to bring about the picture of kernicterus in the presence of excess bilirubin in the blood."

596. Lucey, J.F.; Valaes, T.; and Doxiadis, S.A.: "Serum Albumin Reserve PSP Dye Binding Capacity in Infants with Kernicterus," *Pediatrics*, 39:876-883, June, 1967.

PSP binding capacity was studied in 93 neonates with hyperbilirubinemia in order to determine its reliability and usefulness as "indicator of the risk of brain damage." Although 11 of these infants were diagnosed as having kernicterus, "the PSP reserve dye binding capacity in these neurologically damaged infants was not different from that found in clinically normal infants with the same degree of jaundice." Thus the test was concluded to be of little value.

597. Lucey, Jerold; Ferreiro, Mario; and Hewitt, Jean: "Prevention of Hyperbilirubinemia of Prematurity by Phototherapy," *Pediatrics*, 41:1047-1054, June, 1968.

One hundred and eleven infants, weighing less than 2,500 gm. at birth, were alternately placed in either a group receiving light treatment (53) or a control group (58). The two groups were found to be comparable on a number of listed factors that "are known to have an effect upon the degree of hyperbilirubinemia of prematurity." The light treated group were exposed to the described light from "as soon after birth as possible" until the age of 144 hours. Results indicated serum bilirubin values to be significantly lower in the treated group on the fourth and sixth days with no adverse effects noted. It was concluded that "the prevention of hyperbilirubinemia by phototherapy is simple, inexpensive, and safe." By taking advantage of this alternate route of excretion of bilirubin in the newborn infant, it should, in the future be possible to decrease, or perhaps eliminate, the need for exchange transfusion for hyperbilirubinemia of prematurity."

598. Lucey, Jerold F.: "Diagnosis and Treatment: Current Indications and Results of Fetal Transfusions," *Pediatrics*, 41:139-142, Jan., 1968.

Discussed are the indications for fetal transfusion, the appropriate time for such transfusion, hydrops fetalis, the technique of fetal transfusion, fetal and maternal risks, the effectiveness of such transfusion, and several complications involved such as prematurity.

599. Lucey, Jerold F.: "Diagnosis and Treatment of the Fetus with Erythroblastosis," *Pediatric Clinics of North America*, 13:1117-1130, Nov., 1966.

Three recent developments in this area are reviewed. "These are (1) prevention by the use of anti-D gamma globulin, (2) amniocentesis and fetal intraperitoneal transfusions, and (3) open technique of fetal surgery and transfusion."

600. Lucey, Jerold F.: "Hyperbilirubinemia of Prematurity," *Pediatrics*, 25:690-710, Apr., 1960.

Surveyed in this "review article" is "the subject of hyperbilirubinemia among premature infants in the light of recent advances in our knowledge of bilirubin metabolism." Prenatal factors which may influence the development of hyperbilirubinemia in the infant are considered. These are maternal illnesses, such as diabetes and thyrotoxicosis, medications taken by the mother, genetic factors, anoxia, placenta influences, race, and the influence of hormones. Also considered are the following postnatal variables which may influence the development of hyperbilirubinemia in the neonate: the administration of high doses of Vitamin K, the effect of light, respiratory distress, large neonatal weight losses, the effect of antibacterial agents, the moribund state, etc. The incidences of hyperbilirubinemia and of kernicterus at necropsy as well as methods of treatment are discussed. Questions remaining and research needs are presented.

601. Luessenhop, Alfred J.; dela Cruz, Teodoro C.; and Fenichel, Gerald M.: "Surgical Disconnection of the Cerebral Hemispheres for Intractable Seizures; Results in Infancy and Childhood," *Journal of the American Medical Association*, 213:1630-1636, Sept. 7, 1970.

The history of this procedure and the surgical technique are briefly explained. The cases of four children, on whom the procedure was performed at ages 4 months, 3, 5, and 7 years respectively, are described. They had been followed for from 1 to 2 1/2 years. Positive results are reported in the three older children "whose seizures were primarily of unilateral hemispheric origin," but "the infants' seizures were probably of bilateral origin and were not influenced by surgery." Implications are considered.

602. Lugo, Gustavo, and Cassady, George: "Intrauterine Growth Retardation; Clinicopathologic Findings in 233 Consecutive Infants," *American Journal of Obstetrics and Gynecology*, 109:615-622, Feb. 15, 1971.

Two hundred thirty-three consecutive intrauterine growth retarded (IGR) infants were compared to 2814 "normally grown neonates" with respect to "clinicopathological perinatal findings." All the infants were born during a specified one-year period at the same institution, which serves a predominantly low income, black population. Findings concerning maternal characteristics, pregnancy complications, and perinatal morbidity and mortality are reported. The most common perinatal clinical problems were asphyxia, congenital malformations, hypoglycosemia, and polycythemia. All of these features occurred at significantly higher rates in the IGR babies than in the control group. Detailed figures are given, results are analyzed, and the importance of this condition is stressed.

603. Macaulay, Duncan, and Watson, Marjorie: "Hypernatraemia in Infants as a Cause of Brain Damage," *Archives of Disease in Childhood*, 42:485-491, Oct., 1967.

One hundred and twenty-two children were studied between 1 1/2 and 8 years after having had hypernatraemia in infancy for the purpose of determining their neurological status. Methods are described. The children were grouped on the basis of results and 22 were excluded for various reasons. Of the remaining 100 cases, eight surviving children had brain damage, and eight children who had died were thought to have had brain damage. Details of these 16 cases are presented in tables. The data was further analyzed in an attempt "to find factors in the original illness, which might be of aetiological and prognostic significance" and to ascertain the cerebral pathology in hypernatraemia. Possible methods of prevention are discussed. It is felt that preventing hypernatraemia will do more to reduce the brain damage, than will "treatment of the established condition."

604. McCandless, Geary A.: "Clinical Application of Evoked Response Audiometry," *Journal of Speech and Hearing Research*, 10:468-478, Sept., 1967.

Evoked response audiometry measures were used to test the hearing of 128 patients "who were unable or unwilling to respond accurately to conventional audiometric techniques." Ninety-one of the 128 were six years of age or younger. Procedures, testing results, and six case reports illustrating applicability of the technique are presented. Ten of the 12 cases that produced unsatisfactory results were two years of age or younger. "Unfortunately, evoked response measures are least consistent in the very young patient where it is needed most." Advantages and disadvantages are discussed.

605. McCracken, George H., Jr.; Shinefield, Henry R.; Cobb, Katherine; Rausen, Aaron R.; Dische, M. Renata; and Eichenwald, Heinz F.: "Congenital Cytomegalic Inclusion Disease; A Longitudinal Study of 20 Patients," *American Journal of Diseases of Children*, 117:522-539, May, 1969.

Twenty infants with CID, selected "during the first weeks of life" were extensively studied "for periods up to 9 years." Eighteen of the infants had congenital CID. Epidemiological, clinical, and laboratory findings are reported. Hepatosplenomegaly was the most common clinical finding. Nine of the 18 infants with congenital CID showed evidence of CNS disease by the age of six months. Follow-up developmental and mental examination results are described on 14 of the 18 congenital cases. "Seven of the patients have severe mental and developmental retardation."

606. McDonald, Alison. *Children of Very Low Birth Weight; A Survey of 1128 Children with a Birth Weight of 4 Lbs. (1800 G.) or Less.* Foreword by M.C.O. Bax and R.C. MacKeith, London: Spastics Society Medical Education and Information Unit in association with Heinemann Medical Books, 1967. 126 pp. (M.E.I.U. Monograph, No. 1.)

A survey was conducted on over 1000 children who had a birth weight of 4 lbs. or less. At the time of tracing the children were between six and eight years of age. The perinatal history and the follow-up clinical findings are reported in individual chapters. Following chapters review the pertinent literature and report the findings of the survey with respect to cerebral palsy, intelligence, eye defects, hearing, and fits. Conclusions are presented and discussed in the final chapter.

607. McDonald, Alison D.: "The Aetiology of Spastic Diplegia; A Synthesis of Epidemiological and Pathological Evidence," *Developmental Medicine and Child Neurology*, 6:277-285, June, 1964.

The literature concerning the epidemiology and pathology of spastic diplegia is reviewed and integrated. The cases of "periventricular leukomalacia" reported by Banker and Lorroche (Arch. Neurol. Chic., 7:386, 1962) are discussed and compared to spastic diplegia with respect to common epidemiological features.

608. McDonald, Alison D.: "Cerebral Palsy in Children of Very Low Birth Weight," *Archives of Disease in Childhood*, 38:579-588, Dec., 1963.

The literature is briefly reviewed, and the syndromes of spastic diplegia, spastic hemiplegia, and choreo-athetosis are described. A survey of 1,081 surviving children, weighing 4 lbs. or less at birth, was taken when the children were between six and eight years old for the purpose of studying the relationship between low birth weight and cerebral palsy. Seventy of these children were found to have cerebral palsy; 57 of these 70 had spastic diplegia. Factors studied and reported for the spastic diplegic children include birth weight, length of gestation, sex, early postnatal history, social class, maternal factors, pregnancy and delivery factors, and multiple birth rate. The ways in which the other types of cerebral palsy differed from spastic diplegia are mentioned. Causal implications are discussed.

609. McDonald, Alison D.: "Early Prenatal Factors and Prematurity," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 69:502-505, June, 1962.

In a prospective study, 204 out of 3,179 infants weighed less than 5 1/2 lbs. at birth. An apparent reason for the low birth weight was determined in 89. The remaining 115 infants were divided into two groups on the basis of length of gestation, studied and compared to the others with respect to maternal characteristics, pregnancy factors, and survival.

610. McDonald, Eugene T., and Chance, Burton, Jr.: *Cerebral Palsy*, Englewood Cliffs, New Jersey: Prentice-Hall, 1964. 146 pp. (Foundations of Speech Pathology Series.)

Topics considered in the first five chapters of this text include the multidisciplinary approach, neurophysiological background, etiology, diagnosis, classification, associated disorders, and treatment. Chapters VI and VII deal with the diagnosis and treatment of the speech and language disorders associated with cerebral palsy. A ten-page bibliography is included.

611. McDonald, John S.: "Evaluation of Fetal Blood pH as a Reflection of Fetal Well-Being," *American Journal of Obstetrics and Gynecology*, 97:912-918, April 1, 1967.

A study involving 64 infants was conducted "(1) to determine if fetal blood obtained by dermapuncture is representative of the acid-base status of the fetus; (2) to determine if a correlation exists between fetal blood pH and the one minute Apgar score; (3) to determine if a correlation exists between fetal blood pH and signs of clinical distress, and (4) to determine if the technique of dermapuncture is feasible and acceptable." Methods and results are presented. Analysis of data showed that fetal blood obtained by dermapuncture was usually representative of the fetal acid-base status, that there was a correlation between fetal blood pH and 1 minute Apgar score, that in a small sample a poor correlation existed between pH values and signs of clinical distress, and that "the technique of dermapuncture is both feasible and acceptable yet there are certain points to consider" which are discussed.

612. Macfarlane, David W., and Hanks, Susan B.: "'The Clapper-Dapper,'" *Pediatrics*, 45:116-118, Jan., 1970.

Described and pictured is a "device to prevent equinus during weight bearing." It consists of an aluminum plate, slightly longer than the child's shoe, that is affixed to the foot with ski binding. Pictures show the parts of the device, the assembled device, and the application of the device to the foot. Its successful use with over 50 children is described.

613. McKay, R. James, Jr., and Lucey, Jerold F.: "Neonatology," *New England Journal of Medicine*, 270:1231-1236, June 11, 1964.

Recent (1964) developments in the field are reviewed in this two-part article. Among the topics discussed are "drugs and the intrauterine and newborn patient," "respiratory-distress syndrome," "infants of diabetic mothers," neonatal hypoglycemia," "bilirubin metabolism and 'physiologic' jaundice," "risk of kernicterus," "susceptibility to kernicterus," "amniocentesis," "new approaches to the treatment of erythroblastosis fetalis," "prognosis of prematurity," and "aids to diagnosis." Lengthy bibliographies are included after each part.

614. MacKeith, Ronald: "Cerebral Palsy," in *Ambulatory Pediatrics*, edited by Morris Green and Robert J. Haggerty. Philadelphia: W.B. Saunders, 1968. pp. 493-508.

The needs of handicapped children which must be fulfilled by the medical services of the community are listed and individually discussed. Many aspects of cerebral palsy are then reviewed: Definition, classification, identification, treatment, and prevention. "Normal Motor Development in the First Year" is the subject of the lengthy appendix.

615. McMullin, G.P.; Hayes, M.F.; and Arora, S.C.: "Phenobarbitone in Rhesus Haemolytic Disease," *Lancet*, 2:949-952, Nov. 7, 1970.

Sixty neonates with rhesus hemolytic disease were studied. Thirty of the infants received phenobarbitone as described while 30 controls did not. "Thirty control infants required 40 exchange transfusions; 30 treated infants required 21 exchange transfusions." This is a statistically significant difference. "Two babies in the control group died as a direct result of haemolytic disease or of exchange transfusion. In the treated group there was no neonatal mortality and no morbidity attributable to phenobarbitone. It is concluded that phenobarbitone given to infants affected by rhesus haemoltyic disease from the first few hours of life is of considerable value in reducing the need for exchange transfusion, especially in those mildly affected by rhesus incompatibility." Possible harmful effects of phenobarbitone are discussed.

616. Macnaughton, M.D.: "Hormone Excretion as a Measurement of Fetal Growth and Development," *American Journal of Obstetrics and Gynecology*, 97:998-1019, Apr. 1, 1967.

In this review numerous hormones, measurable in the urine during pregnancy, are considered for the purpose of determining their relationship to fetal growth and development. It is felt that early detection and treatment of fetal growth retardation will decrease infant mortality and morbidity. It is concluded at the time of publication that "measurement of urinary estrogens, particularly estriol, gives the most useful information about fetal growth." A lengthy bibliography follows.

617. McNeil, A.T.: "The Soviet or Psychoprophylactic Method of Painless Childbirth," *Cerebral Palsy Bulletin*, 3:159-166, 1961.

The subject of psychosomatic childbirth is surveyed with emphasis on the Soviet method. Usage of the method and its results in Paris are described. It is concluded that employment of this method of "painless childbirth" without the use of analgesics may result in a definite decrease in cerebral palsy incidence.

618. Macourt, D.; Corker, C.S.; Naftolin, F.: "Plasma Oestriol in Pregnancy," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 78:335-340, April, 1971.

The results of estimating total plasma estriol in 400 normal pregnancies by using "a competitive protein binding method" are reported, including mean normal values, serial estimations, day-to-day variations, diurnal variations, the relationship between maternal plasma estriol level and exercise and meals, and postpartum levels." The advantages of the measurement of plasma oestriol levels over the 24- or 48-hour urinary oestriol assays are discussed.

619. MacQueen, John C.: "Services for Children with Multiple Handicaps," *Children*, 13:55-59, March-April, 1966.

Several of the services provided by the Iowa State Services for Crippled Children are briefly described including the mobile field clinics, the work of the agency with the institutions in the state, the program concerned with the problems of high-risk mothers and their babies, and the programs of the future that are needed in the state. One of these is the need for preschool facilities for handicapped children.

620. MacRae, D.J., and Mohamedally, S.M.: "Effect of Abdominal Decompression on the Metabolism of the Foetoplacental Unit," *Proceedings of the Royal Society of Medicine*, 63:502-505, May, 1970.

Seventeen cases of suspected fetal growth retardation were treated by abdominal decompression in order to study its effect on the production of pregnanediol and estriol treatment methods are described. "A rise in hormone levels was obtained in 15 of the 17 cases treated." The two cases showing no increase are described and interpreted. "It may be concluded that the metabolism of pregnanediol and oestriol during pregnancy can be increased by intermittent abdominal decompression."

621. MacRae, D.J., and Palavradji, D.: "The Effect of Complications of Pregnancy and Labour on the Acid-Base Balance of the Baby at Birth," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 72:269-272, Apr., 1965.

The biochemical effects of abnormal pregnancy and labor on the baby were studied in 150 cases. Methods of analysis are explained. Major changes in the acid-base balance were revealed in cases having these complications. It is suggested that such biochemical changes may cause mortality and morbidity in newborns.

622. Magendantz, Henry G.; Klausner, David; Ryan, Kenneth J.; and Yen, S.S.C.: "Estriol Determinations in the Management of High-Risk Pregnancies," *Obstetrics and Gynecology*, 32:610-619, Nov., 1968.

Results of performing 764 estriol determinations as described in 135 high-risk pregnancies and 10 normal pregnancies are reported. There were 14 perinatal deaths, and data on these are presented. The findings confirm the usefulness of the method, performed serially, to "forewarn the physician of instances of chronic progressive fetoplacental compromise."

623. Mahon, D.F., and Farthing, D.M.: "Training Classes for Handicapped Children," *Physiotherapy*, 57:409-412, Sept. 10, 1971.

Such classes at the nursery school level in Birmingham, England and the process whereby they were established are described. Designed to provide a stimulating environment for the children and an opportunity for learning, socialization, etc. for the mothers, these classes are held "at personal and child health centres" once a week with both mothers and children attending. A physiotherapist is present at each meeting. Toys and equipment used and the factors needed for a successful program are explained. Future needs are stated.

624. Malamud, Nathan; Itabashi, Hideo H.; Castor, Jane; and Messinger, Harley B.: "An Etiologic and Diagnostic Study of Cerebral Palsy. A Preliminary Report," *Journal of Pediatrics*, 65:270-293, Aug., 1964.

Sixty-eight consecutively autopsied cases of cerebral palsy were studied. The study of more is forthcoming. Data was obtained relating to case history, medical findings, and postmortem findings. Pathological findings "were classified on the basis of distinctive pathologic patterns" into two groups: "(1) malformations and (2) destructive processes." Number two was subdivided into "(a) primary subcortical pathology or sequelae of perinatal trauma, (b) primary cortical pathology or sequelae of postnatal disorders, and (c) status dysmyelinisatus or sequelae of kernicterus." Results of classification and discussion of each of these four groups is presented. One hundred fifty-six clinical factors were derived and correlated with the four groups. Results concerning 24 of these prenatal and perinatal factors are discussed. In general the findings confirmed "the diagnostic accuracy of the pathologic classification" and "pointed to the operation of different etiologic factors in each of the groups."

625. Man, Evelyn B.; Adelman, Maurice; Jones, Walter S.; and Lord, Robert M.: "Developmental and BEI of Full-Term and Low-Birth-Weight Infants Through 18 Months," *American Journal of Diseases of Children*, 119:298-307, Apr., 1970.

Realizing that "circulating thyroxine-like iodine compounds" are essential for normal CNS development, the authors studied thyroid function, with serum butanal-extractable iodine (BEI) as the test, in full term and low birth weight infants through the age of 18 months. Subjects and the method used to determine serum BEI values are described; results are presented and pictured in graphs. The BEI values in the normal, full term infants through 18 months were significantly higher than in adults. Compared to these controls the BEI values of the low birth weight infants were significantly lower. Fifteen low birth weight infants were developmentally examined. The BEI values of those 9 classified as normal "appeared to rise postnatally." The others classified as suspect or abnormal, were found to have "low or borderline BEI." Comment is made and a lengthy bibliography follows.

626. Man, Evelyn .; Holden, Raymond H.; and Jones, Walter S.: "Thyroid Function in Human Pregnancy. VII. Development and Retardation of 4-Year-Old Progeny of Euthyroid and of Hypothyroxinemic Women," *American Journal of Obstetrics and Gynecology*, 109:12-19, Jan. 1, 1971. (Series: For II see #629, III see #630, IV see #631, V see #627, VI see #518, VIII see #628.)

Reported is a follow-up study comparing the development at four years of age of "17 children born to hypothyroxinemic women given adequate thyroid replacement therapy and 27 children born to hypothyroxinemic women not given adequate replacement therapy" to the development of 192 children born to euthyroid mothers. Previous data is summarized, and the subjects and testing methods are described. The children were tested for I.Q., fine and gross motor development, and vocabulary and speech. In all test areas, except gross motor development, the children of euthyroid and adequately treated hypothyroxinemic women did better than the children of the inadequately treated women. Implications are considered.

627. Man, Evelyn G., and Jones, Walter S.: "Thyroid Function in Human Pregnancy. V. Incidence of Maternal Serum Low Butanol Extractable Iodines and of Normal Gestational TBG and TBPA Capacities; Retardation of 8-Month Old Infants," *American Journal of Obstetrics and Gynecology*, 104:898-908, July 15, 1969. (Series: For II see #629, III see #630, IV see #631, VI see #518, VII see #626, VIII see #628.)

Measured during 1394 pregnancies were one or more serum butanol-extractable iodine (BEI) values, and measured during 375 pregnancies were one or more serum thyroxine-binding 9 lobulin (TBG) and thyroxine-binding prealbumin (TBPA) capacities. Characteristics and grouping of the patients plus methods of study are described. Included in the results reported is a developmental comparison of the offspring of the mothers who were treated for low BEI values and the offspring of untreated mothers. The infants were assessed at approximately 8 months of age using "the COLR form of Bayley's scales of mental and motor development," "81% of 26 infants of women, given adequate Proloid after 2 low BEI were classified 'normal,' approximately the same per cent as for infants of euthyroid women; but only 48% of 56 infants of women with too low BEI not given adequate thyroid replacement therapy were 'normal'." Further study needs are noted.

628. Man, Evelyn B.; Jones, Walter S.; Holden, Raymond H.; and Mellits, E. David: "Thyroid Function in Human Pregnancy. VIII. Retardation of Progeny Aged 7 Years; Relationships to Maternal Age and Maternal Thyroid Function," *American Journal of Obstetrics and Gynecology*, 111:905-916, Dec. 1, 1971. (Series: For II see #629, III see #630, IV see #631, V see #627, VI see #518, VII see #626.)

This series of articles continues with examination and comparison of data presented for the study subjects at age seven years. Described are the study, the subjects, examination methods, statistical methods, examination results of the "progeny of control euthyroid mothers" and of the "progeny of hypothyroxinemic inadequately treated mothers," and the results of comparing the "scores of 7-year-old children with full scale Intelligence Quotients below the mean - 1 S.D." "The greater percentages of dull-normal 7-year-old children born to hypothyroxinemic inadequately treated women than to euthyroid mothers conform with the data in results on 4-year-old children and also with findings on 326 8-month-old infants."

629. Man, Evelyn B.; Reid, William A.; Hellegers, Andre E.; and Jones, Walter S.: "Thyroid Function in Human Pregnancy. II. Serum Butanol-Extractable Iodine Values of Pregnant Women 14 Through 44 Years," *American Journal of Obstetrics and Gynecology*, 103:328-337, Feb. 1, 1969. (Series: For III see #630, IV see #631, V see #627, VI see #518, VII see #626, VIII see #628.)

Because of the fact that "thyroxine-like iodine compounds" are needed for the normal development of the CNS in the fetus and infant, and because of the known increase in reproductive failure, toxemia, and mental retardation of offspring in pregnant women at the lower and upper levels of childbearing age, a study of a group of such women was undertaken to establish serum BEI standards for them under normal conditions and to determine the role that thyroid function plays in such complications for such women. The BEI values "during 94 normal pregnancies of girls aged 14 through 17 and 52 normal pregnancies of women aged 35 through 44 years" were compared to such values in women 18 to 34 years of age. "Older women had suggestively lower and the 14-year-old girls significantly higher BEI values. For girls aged 15 to 17, the elevation tended to decrease with each year of age." Implications are considered.

630. Man, Evelyn B.; Reid, William A.; Hellegers, Andre E.; and Jones, Walter S.: "Thyroid Function in Human Pregnancy. III. Serum Thyroxine-Binding Prealbumin (TBPA) and Thyroxine-Binding Globulin (TBG) of Pregnant Women Aged 14 Through 43 Years," *American Journal of Obstetrics and Gynecology*, 103:338-347, Feb. 1, 1969. (Series: For II see #629, IV see #631, V see #627, VI see #518, VII see #626, VIII see #628.)

Accompanying the previous article, this paper presents "data on serum TBPA and TBG capacities of pregnant women." TBPA, TBG and BEI values were determined and compared in 122 normal pregnancies. Detailed results and relationships are given in the text and in a series of graphs. In general TBG capacities rose during the pregnancy, decreased during the postpartum period, and "were not related to age." TBPA capacities were lower during pregnancy than during the postpartum period, and "were related to age and varied reciprocally with BEI." Implications are discussed.

631. Man, Evelyn B.; Reid, William A.; and Jones, Walter S.: "Thyroid Function in Human Pregnancy. IV. Serum Butanol-Extractable Iodine Drop with Weight Gain," *American Journal of Obstetrics and Gynecology*, 102:244-247, Sept. 15, 1968. (Series: For II see #629, III see #630, V see #627, VI see #518, VII see #626, VIII see #628.)

Twenty-four pregnant women, without stated complicating conditions, were studied because of a noted decrease in serum BEI of at least 20%. This decrease was found to follow a sudden weight gain, edema, and/or an upper respiratory infection. The BEI's were noted to rise sharply "after the sudden descent." Thus it was shown that when conditions such as sudden weight gain, etc. exist, a single low BEI value does not necessarily indicate the need for thyroid therapy. Confirmation would be needed when such conditions did not exist.

632. Mandelbaum, Bernard; La Croix, George C.; and Robinson, Abner R.: "Determination of Fetal Maturity by Spectrophotometric Analysis of Amniotic Fluid," *Obstetrics and Gynecology*, 29:471-474, Apr., 1967.

Single and serial samples of amniotic fluid were obtained in obstetric patients and were analyzed using a spectrophotometer as described. Bilirubin was seen to progressively decrease during pregnancy with the 450 mμ peak disappearing after 36 weeks of gestation. None of the infants "delivered after a 00 reading" weighed less than five pounds and signs of prematurity were absent. Thus far, the procedure described has accurately assessed fetal maturity and may be of value in the timing of elective terminations of pregnancy."

633. Mann, Leon I.; Solomon, Gail; Carmichael, Andrew; and Duchin, Sybil: "The Effect of Metabolic Acidosis on Fetal Brain Function and Metabolism," *American Journal of Obstetrics and Gynecology*, 111:353-359, Oct. 1, 1971.

Ten pregnant ewes were studied to determine the above effect. A significant decrease in pH was noted when lactic acid was infused as described into the fetal circulation. "Oxygen tension in the carotid artery, carotid blood flow, heart rate, and cerebral oxygen consumption did not change significantly during the acid infusion. An increase in cerebral glucose consumption and an uptake of lactate by the brain was associated with a dropout of the faster rhythms in the electroencephalogram (EEG), a decrease in amplitude, and the appearance of sharp waves. While the systemic acidosis was corrected by the infusion of THAM, cerebral function in terms of EEG responded poorly." "Similarities of these results to those observed during hypoxia are discussed."

634. Mark, Henry J., and Mark, Shirley Alpern: "Neuropsychology Examinations in Young Children," in *Exceptional Infant, Volume 2, Studies in Abnormalities*, edited by Jerome Hellmuth. New York: Brunner/Mazel, 1971. Pp 41-53.

"The frequently affected avenues of learning in young children" are considered and discussed under the categories of "sensori-motor modalities" and"languages." Various elements of the neuropsychological examination are considered, including "limit testing" to identify psychosocial factors that may affect results, the identification of areas of strength and weakness from a "skill profile," and elicitation of "the child's best intellectual capabilities" to set a standard and to "anchor" the child's profile. Also considered is the proper use of these profiles and the translation of these "diagnostic profiles into treatment and prescriptions." The importance of a comprehensive examination, as opposed to using sampling techniques, with high risk children is discussed.

635. Marks, Alan N., and Man, Evelyn B.: "Serum Butanol-Extractable Iodine Concentrations in Prematures," *Pediatrics*, 35:753-758, May, 1965.

The importance of adequate BEI levels in infancy for the proper development of the central nervous system is stressed. Two hundred and one BEI's of 187 newborns, including 20 who weighed under 2000 gm. at birth were compared. "Mean BEI values increased progressively through 500 gm. increments in birth weight from the 2,000-2,500 gm. to the 3,500-4,000 gm. group, without further rise for infants over 4,000." Fifteen of the infants who were premature or had had low BEI's were examined at between 11 to 19 months of age. "Seven of these 15 children could not be classified clinically as normal in growth and development." Related literature is reviewed.

636. Marrow, Grant, III; Bongiovanni, Alfred M.; Bomberger, John H.A.; and Boggs, Thomas R., Jr.: "The Effect of Triiodothyronine on Neonatal Hyperbilirubinemia," *Journal of Pediatrics*, 68:413-417, March, 1966.

The daily administration of triidothyronine for four days after infants with either hemolytic disease or idiopathic hyperbilirubinemia had received an initial exchange transfusion had no effect, compared to controls, on the number of transfusions needed. It was thus concluded that this drug was ineffective "in controlling hyperbilirubinemia, regardless of its cause."

637. Marstrander, J.: "The Prognostic Value of Neurologic Signs in Infancy: Preliminary Results from a Follow-Up Study of Prematures with Birth Weight Less than 2000 G.," *Acta Paediatrica Scandinavica Supplement*, 159:81-84, 1965.

Reported are the results of a study in which 80 infants, having birth weights of less than 2000 grams, were given "regular control examinations" at the ages of 4, 8, 12, and 18 months. Tables show the results of evaluation at the four examinations and the frequency of "the most important neurologic signs" seen at the four examinations. Fourteen infants were "found to be definitely abnormal" at 18 months. Three of these 14 were diagnosed as having spastic cerebral palsy and one as having athetosis. A table shows the different symptoms seen in the three spastic babies at the four examinations. It is concluded that when neurological symptoms and "developmental aberrations" are both evaluated, it is possible "to suspect neurologic abnormalities in examination of small infants."

638. Martin, R.H., and Higginbottom, James: "A Clinical and Radiological Assessment of Fetal Age," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 78:155-162, Feb., 1971.

In the first part of this study the thighs of 1454 newborns, having gestational ages of between 30 to 43 weeks, were measured as described. Findings indicated "that linear growth occurs at approximately 3 mm. per week." This data was then used to assess fetal maturity by measuring the length of the femur of the fetus several weeks before birth. The radiological techniques used are described in detail. Three mm. were added to the radiological measurement "for every week that the pregnancy progressed, and ultimately the thigh was measured in the newborn infant to find out if the radiological measurement was correct." "From this experience it was possible to give an estimate of gestational age by direct measurement of the femur on the radiograph." Results showed that gestational age could be predicted "with a range of accuracy, at worst, of just less than two weeks and, at best, within the actual week of gestation."

639. Masland, Richard L.: "Spastic Diplegia After Short Gestation," *Developmental Medicine and Child Neurology*, 12:127-128, Apr., 1970.

This editorial points out the need for increased investigation into the causes of spastic diplegia in children of short gestation. A recent unpublished analysis by John Churchill and the results of other studies are reported.

640. Massa, T., and Niedermeyer, E.: "Convulsive Disorders During the First Three Months of Life," *Epilepsia*, 9:1-9, Mar., 1968.

"Eighty-two babies ranging from 2 days to 3 months of age and admitted at the John Hopkins Hospital because of seizures" were studied. Etiological, EEG, and follow-up data are presented. "Relatively short follow-up studies demonstrate a fairly high incidence of neurological and intellectual deficits as well recurrence of seizures. Most notorious in this regard proved to be the group of 'morphological brain damage.' Hence the long-term prognosis of seizures occurring in early infancy is a guarded one."

641. Matheny, Mary Marguerite, and Ruby, Doris Ott: "A Guide for Feeding the Cerebral Palsied Child," *Cerebral Palsy Review*, 24:14-16, Mar.-Apr., 1963.

Feeding the cerebral palsied child from birth is discussed. Ten common disabilities of cerebral palsied children, the feeding difficulties arising from these disabilities, and possible solutions to the feeding difficulties are presented.

642. Mattison, Donald R.: "Amniotic Fluid Osmolality," *Obstetrics and Gynecology*, 36:420-424, Sept., 1970.

Amniotic fluid osmolality was studied by described methods in a group of patients "with fetuses at risk due to hemolytic disease." Osmolality was found to normally decrease as gestational age increased. "An upward excursion of the osmolality was interpreted as signifying fetal and/or placental compromise at that time. The subsequent return of osmolality to normal indicates successful response to compromise by the fetoplacental unit or to the removal of the stress."

643. Maurer, Harold M.; Wolff, James A.; Finster, M.; Poppers, Paul J.; Pantuck, E.; Kuntzman, R.; and Conney, A.H.: "Reduction in Concentration of Total Serum-Bilirubin in Offspring of Women Treated with Phenobarbitone during Pregnancy," *Lancet*, 1:122-124, July 20, 1968.

Concentrations of serum bilirubin were compared for the first four days of life in the infants of 12 pregnant women given phenobarbitone, as described, for two weeks or more before delivery and in 16 control infants. All infants "were vigorous at birth and thereafter." "Serum-bilirubin levels were significantly lower in babies of treated mothers, and maximum serum-bilirubin levels occurred earlier in this group." Reasons for this and implications are discussed.

644. Maurer, Harold M.; Wolff, James A.; and Luke, Koon-Hung: "Phenolsulfonphthalein Binding Capacity of Serum In Newborn Infants," *Journal of Pediatrics*, 74:231-239, Feb., 1969.

In order to study the PSP binding capacity in serum of infants, cord blood was obtained from normal prematures and full-terms, prematures and full-terms with hemolytic hyperbilirubinemia, and prematures and full-terms with non-hemolytic hyperbilirubinemia. Methods and detailed graphic results are presented. The serum dye binding capacity (D.B.C.) was found to be lower in the premature infants and in those with hemolytic hyperbilirubinemia. When albumin was administered intravenously to two prematures with nonhemolytic hyperbilirubinemia, "a rise in D.B.C. with only a transient elevation in bilirubin" resulted. These results and those of others are discussed with regard to "the relationship of the D.B.C. to susceptibility to kernicterus in premature and full-term infants with hemolytic and nonhemolytic hyperbilirubinemia."

645. Mecomber, Sara A., and Herman, Richard M.: "Effects of Local Hypothermia on Reflex and Voluntary Activity," *Physical Therapy*, 51:271-282, Mar., 1971.

The use of cold therapy in medicine and, in particular, to relieve spasticity is reviewed. A study, involving four hemiplegic and five paraplegic patients, is described in which "the effect of local cooling on myotatic reflex and voluntary activity of the spastic triceps surae muscle was observed." Findings are reported on the effect of cooling on the tendon jerk responses, on the response to passive stretch, on the response to vibration, and on voluntary contraction. In both groups of subjects, decreased spasticity was noted in that the stretch reflex responses (to ramp movement and to tendon tap) were reduced, nerve conduction time was increased, and the response to vibration was decreased."

646. Medovy, Harry: "New Parameters in Neonatal Growth; Cell Number and Cell Size," *Journal of Pediatrics*, 71:459-469, Sept., 1967.

The current literature on the subject is reviewed, and seven recent "observations" concerning abnormal intrauterine and extrauterine cellular growth are summarized.

647. Michaelis, R.; Schulte, F.J.; and Nolte, Renate: "Motor Behavior of Small for Gestational Age Newborn Infants," *Journal of Pediatrics*, 76:208-213, Feb., 1970.

Twenty-two neonates (Group I) who were small for gestational age and 25 full-term neonates of normal birth weight (Group II) were given a two-part examination. "Part A was a routine pediatric examination" including a standard neurological examination from which a neurological diagnosis was made. Eleven of the infants in Group I were considered to be neurologically abnormal and are described. In Part B of the examination numerous reflexes and "motor automatisms" were elicited, evaluated, and scored as described. Significant differences in motor behavior between the two groups are reported and analyzed.

648. Michell, Guy: "Maternal Deprivation," *Developmental Medicine and Child Neurology*, 5:42-44, Feb., 1963.

In this paper certain of the issues involved in this subject are summarized with particular reference to information contained in a review article by Mary Ainsworth in the World Health Organization's volume, *Deprivation of Maternal Care: A Reassessment of Its Effects*, published in 1962. Summarized are "the current view of attachment behavior, changes observed in institutionalized infants, and two studies investigating differences between infants in homes and in institutions. Some commonly confused terms are defined.

649. Michie, Eileen A.: "Urinary Oestriol Excretion in Pregnancies Complicated by Suspected Retarded Intrauterine Growth, Toxaemia, or Essential Hypertension," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 74:896-901, Dec., 1967.

Urinary estriol values were measured in pregnant women having the above conditions. Results are presented and discussed. Such measurements were found to be of value in diagnosing severe intrauterine growth retardation and "in assessing foetal-placental impairment" in cases of severe toxemia. The condition of "essential hypertension alone does not particularly affect oestriol excretion."

650. Milani-Comparetti, A.: "Indications for Residential Treatment in the Early Years of Life," *Developmental Medicine and Child Neurology*, 5:159-161, Apr., 1963.

The problem is defined as being one of fulfilling the two basic needs of the young spastic child - family love and early treatment. The importance of the latter need is stressed. Home and very frequent outpatient treatment is strongly advocated, but residential treatment is fundamentally indicated in two types of cases: (1) cases in which the family is not able to help with treatment, and (2) cases in which the needed treatment facilities can only be provided in the institution. When outpatient facilities are not available, the decision for or against residential treatment must be made on an individual basis. The author feels that certain spastic children would suffer particular harm from residential care.

651. Milani-Comparetti, A., and Gidoni, E.A.: "A Graphic Method of Recording Normal and Abnormal Movement Patterns," *Developmental Medicine and Child Neurology*, 10:633-636, Oct., 1968.

A study was conducted to examine the Benesh Movement Notation Method as a means of recording motorscopic data. In this procedure, observed movements are symbolically plotted on a five-line staff by a trained choreologist. The method was used to record about 5,000 separate patterns of movement and posture in normal children and adults, and in cerebral palsied children. Conclusions from this study are presented.

652. Milani-Comparetti, A., and Gidoni, E.A.: "Pattern Analysis of Motor Development and Its Disorders," *Developmental Medicine and Child Neurology*, 9:625-630, Oct., 1967.

Normal children gradually acquire a large variety of motor patterns but children with cerebral palsy are restricted in the development of motor patterns because of damage to the nervous system. The view is firmly expressed that the "motoscopic examination," or analysis of motor patterns, should be included in the neurodevelopmental examination of the infant. In this procedure both spontaneous motor movement and pattern movement resulting from stimuli are observed. Although many muscle patterns have not been clearly defined, it is felt that pattern analysis in cerebral palsy has resulted in earlier, more consistent, and more reliable diagnosis.

653. Milani-Comparetti, A., and Gidoni, E.A.: "Routine Developmental Examination in Normal and Retarded Children," *Developmental Medicine and Child Neurology*, 9:631-638, Oct., 1967.

Because of the length and number of routine developmental examinations, it is often necessary to select some developmental area for concentrated evaluation. The parameter of "standing" is proposed as a significant area for examination because of the limited number of specific reactions or reflex structures essential to the function. Discussed are the righting reactions, the parachute reactions, the tilting reactions, and the primitive reflexes. A chart with notes designed to facilitate easy recording of these developmental reactions in young children is included. A revised chart is published in *Developmental Medicine and Child Neurology*, 9:766, Dec., 1967.

654. Miles, Phillip A., and Pearson, Jack W.: "Amniotic Fluid Osmolality in Assessing Fetal Maturity," *Obstetrics and Gynecology*, 34:701-706, Nov., 1969.

By described methods determinations of the osmolality of amniotic fluid were made in 57 normal and 19 abnormal pregnancies between 29-43 weeks of gestation. Criteria for both types of pregnancy are listed. Osmolality was seen to decrease as gestational age increased. Except for two cases, no differences in osmolality between the normal and the abnormal pregnancies could be detected. Such a method is felt to be of value in assessing fetal maturity.

655. Miller, Brewster S.: "Current Research in Prevention and Treatment of Cerebral Palsy and Related Cerebral Dysfunction," *Journal of Rehabilitation*, 32:13-26, Sept.-Oct., 1966.

In this paper the program of the United Cerebral Palsy Association is summarized. The objectives of the agency and the four areas in which research is being concentrated are listed. These four are "prematurity; blood type incompatibility, bacterial and viral infections, and clinical management of labor and delivery." Numerous research studies in the area of prevention are described, including work relating to prenatal factors, a German measle vaccine, nerve tissue regeneration, acute oxygen deficiency, measles encephalitis, and "pseudo retardation."

656. Miller, J.A., Jr.; Miller, F.S.; and, Westin, B.: "Hypothermia in the Treatment of Asphyxia Neonatorum," *Biologia Neonatorum*, 6:148-163, 1964.

Studies of mammals, in which was demonstrated the protective effect of hypothermia before or during asphyxiation and the added benefit of administering nembutal or chlorpromazine before the cooling process, are reviewed. Also reported are the results of using hypothermia with human asphyxiated infants. In 65 severely depressed cases in which hypothermia was employed, 13 died and 52 infants survived. Data on both groups are presented. "Thus far, all 52 infants have been found to be within normal ranges for growth, motor and speech development." In the author's two series of asphyxiated infants "it is significant that in none of the infants has there been evidence of cerebral palsy,"

657. Miller, James A., Jr.: "New Approaches to Preventing Brain Damage During Asphyxia," *American Journal of Obstetrics and Gynecology*, 110:1125-1133, Aug. 15, 1971.

Several studies are presented to suggest new such approaches, with the use of hypothermia emphasized. One hundred per cent of the kittens, rabbits, and puppies asphyxiated spontaneously recovered from twice the lethal exposure at 15° C. "In cesarean-delivered monkeys, cooling begun 2 minutes after last gasp prevented brain damage from asphyxia." The beneficial metabolic effects of cooling are described as are cardiovascular and acid-base studies. The combination of tris hydroxymethyl aminomethane (tham), glucose, and hypothermia have produced "the longest survivals during asphyxia yet achieved." The question of when cooling should be initiated in the asphyxiated infant is considered, studies on primates are reported, and the use of intra-arterial transfusions for asphyxia is discussed. "Human trials are encouraging, and it is now suggested that infants with Apgar scores of 3 or less be cooled immediately after birth while receiving artificial respiration and other resuscitative measures."

658. Miller, James A., Jr., and Miller ,Faith S.: "Studies on Prevention of Brain Damage in Asphyxia," *Developmental Medicine and Child Neurology*, 7:607-619, Dec., 1965.

The authors state the belief that at the present time the problem of cerebral palsy is best approached by searching "for methods of prevention rather than attempting to cure a condition which is essentially incurable." Studies on animals and on humans that have tested the hypothesis that cooling of asphyxiated newborns decreases death and brain damage are reported. Findings are listed and discussed. Although clinical trials have been too few to establish conclusions, the authors predict that when hypothermia is induced in the process of resuscitating infants, "fewer deaths from asphyxia neonatorum, fewer cerebral palsies, and higher I.Q. scores" will result.

659. Miller, Maurice H.: "Neonatal and Infant Auditory Screening Programs; An Evaluation of Their Current Status," *Clinical Pediatrics*, 9:340-345, June, 1971.

General factors related to the screening of hearing in children are briefly considered. The advantages of detecting communication disorders in infancy are listed. The method of Downs, et al is described as an infant screening approach that is commonly used, and the work of Eisenberg, et al in identifying factors that can influence auditory testing responses is praised. These factors are listed. The limitations of the Downs method in terms of these factors and false positive and fake negative test results are presented. It is also pointed out that otitis media is not detected by such methods. In summarizing, "major obstacles" in the usage of a "3000 Hz stimulus presented at a level of 90 dB SPL," as the Downs method is, are listed and conclusions are drawn.

660. Milstein, Jerrold M.: "Hypoglycemia in the Neonate," *Postgraduate Medicine*, 50:91-94, July, 1971.

The condition is described and is considered to be "not only a diagnosis but also a symptom, and definite diagnosis is essential." "Transient hypoglycemia" is differentiated from "prolonged and recurrent hypoglycemia" with the known causes of both discussed. Treatment is also briefly described.

661. Misenhimer, Harold R.: "Amniotic Fluid Analysis in Prenatal Diagnosis of Erythroblastosis Fetalis," *Obstetrics and Gynecology*, 23:485-493, Apr., 1964.

Amniotic fluid samples were obtained during the last trimester of pregnancy in 19 isoimmunized patients. "In 17 of the 19 patients, an accurate antepartum prediction of the status of the fetus has been made." Cases are described, problems are discussed, and "Conclusions" are listed.

662. Mitchell, Ross G.: "The Landau Reaction (Reflex)," *Developmental Medicine and Child Neurology*, 4:65-70, Feb., 1962.

To clarify opinion differences concerning this reflex, an attempt is made to answer the following questions: (1) "What is the Landau reaction?" (2) "At what age is it normally present?" and (3) "What is the mechanism involved?"

663. Mitchell, Ross G.: "The Moro Reflex," *Cerebral Palsy Bulletin*, 2:135-141, 1960.

The movements involved in this reflex as it is elicited in the neonate and methods of eliciting the reflex are described. Also of concern are the age at which the reflex normally disappears or "matures," the significance the reflex has clinically, its physiological meaning, and the realtionship of the Moro reflex to other reflexes.

664. Mitchell, Ross G.: "The Prevention of Cerebral Palsy," *Developmental Medicine and Child Neurology*, 13:137-146, Apr., 1971.

After explaining the complexity of the subject, the author presents and discusses three objectives of prevention in regard to cerebral palsy. The first is termed "primary prevention" and is concerned with the prevention of "situations arising which might predispose to cerebral palsy" such as prematurity. The second objective is "secondary prevention" in which cerebral palsy is prevented when the "predisposing condition" exists. Discussed in this regard are the conditions of hypoxia, hypoglycemia, hyperbilirubinemia, hypernatremia, and conditions occurring after the neonatal period. "Tertiary prevention" is the third objective and applies to the situation "when a motor disorder resulting from cerebral dysfunction is inevitable." The aim in this case is to minimize the disorder as much as possible "and to prevent or reduce resultant disability" by early identification, therapy, and other measures.

665. Montagu, M.F. Ashley. *Prenatal Influences*. Springfield, Illinois: Charles C. Thomas, 1962. 614 pp.

The author's concern in this volume is with the human life in the womb and with the many factors that influence its subsequent growth and development. "It often deals with what has gone wrong with the organism in the womb and why." The process of prenatal growth and the development and function of the placenta is traced. Several chapters deal with the many maternal influences, such as nutrition, age, emotions, infections, use of drugs, etc., which effect the prenatal environment. Discussed in other chapters are the effects on the fetus or infant of anoxia, prematurity, Cesarean section, postmaturity, multiple pregnancy, outside physical stimuli, and various sources of radiation. The birth process and its effects on the infant are analyzed. Many studies are reported within the text, and a lengthy bibliography is included.

666. Moore, W.M.O.; Murphy, P.J.; and Davis, J.A.: "Creatinine Content of Amniotic Fluid in Cases of Retarded Fetal Growth," *American Journal of Obstetrics and Gynecology*, 110:908-910, Aug. 1, 1971.

Amniotic fluid and maternal serum specimens were obtained during the last trimester of pregnancy from 13 mothers of babies having normal birth weights and from 8 mothers of babies having retarded fetal growth, determined as described. Findings "are expressed as the excess of amniotic fluid creatinine above the values in maternal serum at different stages of gestation" and "reveal that amniotic fluid creatinine concentration is not a reliable index of maturity if the fetus is small for gestational age because low values occur." "While low creatinine values are indicative of prematurity when fetal growth is normal, such values may be associated with maturity when the fetal growth is retarded."

667. "More Oxygen during Cesarean Section Results in Healthier Neonates," *Journal of the American Medical Association*, 214:1634-1635, Nov. 30, 1970.

In a study at the Albert Einstein College of Medicine, New York City, sixty-five healthy women who underwent elective Cesarean section were divided into five groups and "breathed varying concentrations of oxygen during delivery." The higher concentrations produced "higher oxygen saturation content, and tension in the blood of the infants;" "higher Apgar scores;" and "reduced mean time for the infants to achieve sustained respiration."

668. Morgan, Jacqueline A.; Gyepes, Michael T.; Jones, Margaret H.; and Desilets, Donald T.: "Barium-Impregnated Chocolate Fudge for the Study of Chewing Mechanism in Children," *Radiology*, 94:432-433, Feb., 1970.

Described is the use of such a 'contrast agent' to enable the cineradiographical evaluation of swallowing deficits in cerebral palsied children. The recipe for the fudge is given and other possible uses of this technique are mentioned.

669. Morgenstern, F.S.: "Facilities for Children's Play in Hospitals," *Developmental Medicine and Child Neurology*, 10:111-114, Feb., 1968.

Play facilities for hospitalized children should be designed to claim the child's attention, provide numerous stimuli, and be arranged to encourage social interaction. Play provisions for children in bed and for those with restricted movement, indoor playrooms, and outdoor play areas are discussed. Staff interest in play activities is important.

670. Morgenstern, F.S.: "Psychological Handicaps in the Play of Handicapped Children," *Developmental Medicine and Child Neurology*, 10:115-120, Feb., 1968.

Lack of curiosity and motivation, perceptual difficulties, and distractibility are psychological handicaps often seen in the mentally or physically handicapped child. These factors limit the child's capacity to play and to benefit from play experiences. Adult praise is an important influence. Use of the teaching machine to develop play in young handicapped children is suggested.

671. Morris, E. David, and Beard, R.W.: "The Rationale and Technique of Foetal Blood Sampling and Amnioscopy," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 72:489-495, Aug., 1965.

The disadvantages of other methods of assessing fetal condition are mentioned, and the methods of amnioscopy and fetal blood sampling are explained.

672. Morris-Jones, P.H.; Houston, I.B.; and Evans, R.C.: "Prognosis of the Neurological Complications of Acute Hypernatraemia," *Lancet*, 2:1385-1389, Dec. 30, 1967.

Fifty children in whom a hypernatremic episode had occurred between the period of infancy to 10 years of age were "investigated to determine the immediate effects and long-term sequelae of their episode." Ten of the children (20%) died at the time of the episode. Thirty-two of the 40 survivors were followed and examined 12 to 63 months following the episode. "Twelve (37%) of these had abnormalities on neurological examination, intelligence testing, or electroencephalography; in several, however, the abnormalities were probably unrelated to the earlier hypernatraemia, and only three out of 32 (9%) had both related and symptomatically important lesions." The literature is reviewed and possible implications are discussed.

673. Motoyama, Etsuro K.; Rivard, Guy; Acheson, Fiona; and Cook, Charles D.: "Adverse Effect of Maternal Hyperventilation on the Foetus," *Lancet*, 1:286-288, Feb. 5, 1966.

Although maternal hyperventilation has commonly been used in cases of premature delivery and suspected prenatal distress with the assumption that fetal oxygenation would be improved, results of studies on sheep and reanalysis of data on humans are described in which a correlation was found between "hyperventilation and hypocapnia of the mother and a reduction in foetal oxygenation."

674. Muller, Paul F.; Campbell, H. Edwin; Graham, William E.; Brittain, Harry; Fitzgerald, Joseph A.; Hogan, Michael A.; Muller, Victor H.; and Rittenhouse, A.H.: "Perinatal Factors and Their Relationship to Mental Retardation and Other Parameters of Development," *American Journal of Obstetrics and Gynecology*, 109:1205-1210, April 15, 1971.

In a described retrospective study, the obstetrical records of 1698 children who were age nine in 1965 were studied as described. Physical and mental development of these children was then assessed by the administration of the Lorge-Thorndike intelligence test and by sending questionnaires to the parents, the doctors, and the school principals of these children. Correlations between obstetrical factors and developmental data were then made with the methods explained. "Several statistically significant correlations were established. Advanced age of the mother, breech presentation, premature rupture of the membranes, and prematurity were all found to have a statistically significant deleterious effect." A discussion follows the article.

675. Murphy, John F., and Mulcahy, Risteard: "The Effect of Age, Parity, and Cigarette Smoking on Baby Weight," *American Journal of Obstetrics and Gynecology*, 111:22-25, Sept. 1, 1971.

Studied in 10,692 mothers were "the effects of maternal age, parity, and cigarette smoking on baby weight." Results concerning each of these three factors are reported. It was found that "maternal age and parity have no significant effect, but cigarette smoking is associated with a highly significant reduction in baby weight." "The effect of smoking is close-related up to a consumption of 10 to 12 cigarettes per day." Possible explanations are considered including the high level of carboxyhemoglobin that has been found in the blood of cigarette smoking mothers and their fetuses.

676. Murphy, P.J.: "The Estimation of Fetal Maturity with Retarded Intrauterine Growth," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 76:1070-1074, Dec., 1969.

The reasons for desiring to know the fetal maturity in a "suspect pregnancy" are mentioned. Fetal maturity was assessed by several methods in 24 antenatal cases in which there was "clinical evidence of retarded intrauterine growth," in order to determint the value of each of these methods in estimating fetal maturity in cases such as these. The parameters used "were the gestational maturity, uterine size, radiology, volumetric estimation of the liquor volume and amniotic fluid cytology" and a postnatal neurological assessment. None of the babies were born prematurely "by the generally accepted definition." Results concerning the found value of each method are presented.

677. Myers, Ronald E.; Beard, Richard; and Adamsons, Karlis: "Brain Swelling in the Newborn Rhesus Monkey Following Prolonged Partial Asphyxia," *Neurology*, 19:1012-1018, Oct., 1969.

Ten near-term monkey fetuses were progressively asphyxiated experimentally as described. Electrocardiographic, cardiovascular, blood chemical and gross brain morphological changes were recorded and are reported in a table. "Mild to moderate degrees of brain swelling" were noted in 7 of the 10 fetuses. "The degree of brain swelling correlated best with the length of hypoxia, hypercarbia, and pH below 7." Implications are considered.

678. Myers, William A. *Learning Systems for Preschool Physically Handicapped Children: A Training Program.* Austin, Texas: University of Texas, Program for Staff Training of Exemplary Early Childhood Centers for Handicapped Children, [1971]. 24 pp. (Distinguished Staff Training Monograph Series Vol. II, No. 3.)

Discussed in detail in this monograph are two items which are important factors in the basic philosophy of "learning systems for preschool physically handicapped children." These are "communication systems and educational goals and procedures as they relate to all personnel associated with each handicapped youngster." Workable communication systems must be devised among the staff, between the staff and the child's family, and between the staff and the formal school the child will attend. "Several basics of teaching procedure" are considered including the importance of the influence of the child's environment, the child's motivation, the early reinforcement of success, the setting of realistic goals, the active involvement of the child in his environment, etc. Also described are characteristics of learning which are "particular to the physically handicapped." The concepts discussed are summarized, and a chart is presented and explained which "outlines a possible training approach for the education of professionals working with handicapped children." A bibliography and information about the author are included.

679. Mysak, Edward D. *Neuroevolutional Approach to Cerebral Palsy and Speech.* New York: Teachers College, Columbia University, 1968. 114 pp.

This is a revised and enlarged edition of the author's *Principles of a Reflex Therapy Approach to Cerebral Palsy* published in 1963 (see below). Information on this approach to therapy has been updated and the consideration of speech and speech therapy in cerebral palsy has been expanded. An index has also been added.

680. Mysak, Edward D. *Principles of a Reflex Therapy Approach to Cerebral Palsy.* New York: Bureau of Publications, Teachers' College, Columbia University, 1963. 56 pp.

The theoretical background, the principles, and the procedures of the reflex therapy approach to the treatment of cerebral palsy are presented. "Human evolutional reflexology" is reviewed, and considerations for implementing reflex therapy programs are discussed. The results of a pilot study to experimentally examine the techniques of reflex therapy are reviewed. The appendices include a "Table of Reflexive Maturation and Motor Development" and sample forms used in recording examination information.

681. Mysak, Edward D., and Fiorentino, Mary R.: "Neurophysiological Considerations in Occupational Therapy for the Cerebral Palsied," *American Journal of Occupational Therapy*, 15:112-117, May-June, 1961.

The specific purpose of the paper is to discuss the theoretical and practical significance of utilizing the basic principles of the Bobath approach in occupational therapy for the cerebral palsied. Previous to fulfilling this purpose, the neurophysiological viewpoint of cerebral palsy treatment is introduced and the "basic concepts of the Bobath approach" are presented.

682. Nabors, G.C.: "Maternal Age and Parity in Relation to Cerebral Palsy in Their Infants," *Southern Medical Journal*, 56:282-283, Mar., 1963.

Maternal age and parity were studied in 382 cases of cerebral palsy. Cerebral palsy was found to occur most frequently in the offspring born to women over the age of 35, except primigravidas. "Specific types of cerebral palsy are not related to age or parity of the mother."

683. Nabors, G.C.: "Problems Associated with Determining the Etiology of Cerebral Palsy," *American Journal of Obstetrics and Gynecology*, 79:932-937, May, 1960.

It is noted that obstetricians should be encouraged to be more aware of cerebral palsy and more thorough in the recording of data which would be helpful in determining etiology. Obstetricians are in a position to more closely define etiological features. Another problem occurs when other staff members of a cerebral palsy clinic attempt to evaluate data best studied by the obstetrician. The helpfulness of the obstetrician in assessing etiological factors is illustrated by a reported study.

684. Naeye, Richard L.: "Malnutrition; Probable Cause of Fetal Growth Retardation," *Archives of Pathology*, 79:284-291, Mar., 1965.

When autopsy results were compared in 11 infants having had fetal growth retardation and in 7 infants having had alimentary malnutrition, many similarities in organ structure were noted and are reported. "This similarity of abnormalities in the two groups suggests malnutrition as a common cause for their growth retardation. Placental abnormalities in the prenatally retarded infants suggest an etiology for their malnourished state. Both groups have organ abnormalities which help to explain disturbances in carbohydrate metabolism and subsequent abnormalities in physical and mental growth."

685. Naeye, Richard L., and Kelly, John A.: "Judgment of Fetal Age. III. The Pathologist's Evaluation," *Pediatric Clinics of North America*, 13:849-862, Aug., 1966. (Series: For I see #555, II see #974.)

Numerous parameters used to judge fetal maturity are discussed, including body weight, body length, head circumference and brain weight, cell size and cell number, and the maturity of individual organs such as the heart, lungs, kidney, adrenals, nervous system, etc. "Unfortunately, many of these parameters fall when most needed because they themselves are often abnormal for gestational age in disorders in which prenatal growth is abnormal."

686. National Research Council. Committee on Maternal Nutrition. *Maternal Nutrition and the Course of Pregnancy*. Washington, D.C.: National Academy of Sciences, 1970. 241 pp.

This volume contains the report of the above Committee. Listed in the Preface are the topics considered by the Committee and the reference to the chapter in which each topic is considered. Of particular pertinence to this bibliography are: (1) Chapter 2, which is a review article, entitled "The Epidemiology of Human Reproductive Casualties with Emphasis on the Role of Nutrition" written by Earl Siegal and Naomi Morris, and (2) Chapter 5, which is a report of a "Working Group," entitled "Relation of Nutrition to Fetal Growth and Development." Recommendations made by the Committee are listed in Chapter 8. Included is a lengthy, subject divided bibliography. A summary of this report is available from the National Academy of Sciences.

687. Neber, William A.; Flowers, Charles E., Jr.; Jones, O. Hunter; Peete, Charles H.; Pearse, Richard L.; and Summerlin, Arthur R.: "Obstetric Factors in Cerebral Palsy, A North Carolina Study," *North Carolina Medical Journal*, 23:329-335, Aug., 1962.

Records of 79 cases of cerebral palsy in North Carolina "were analyzed in a retrospective study of obstetric factors related to the etiology" as a means of "interesting obstetricians in cerebral palsy" and to investigate possible "preventable obstetric factors in its etiology." Findings are reported regarding the types of cerebral palsy studied, the sex and racial distribution, the number of cases that involved premature birth, the number of full-term cases, the time of the onset of symptoms, and the incidence of mental deficiency. Principle findings are listed in the "Summary" and "Conclusions" which indicate that "proper exchange of information among obstetricians could help eliminate some of the obstetric factors which are associated with these conditions."

688. Negrin, Juan: "Local Hypothermia of the Spinal Cord for Relief of Spasticity and Rigidity: Preliminary Observations," *Archives of Physical Medicine and Rehabilitation*, 47:169-173, Mar., 1966.

Local hypothermia and its use with eight cerebral palsied cases are described. "These findings seem to indicate that local hypothermia of the spinal cord in patients with spasticity can result in lessening or disappearance of spasticity." The advantages of the method are listed, and theoretical and physiological aspects of local hypothermia are discussed.

689. Neligan, G.A.: "The Clinical Effects of Being 'Light for Dates'," *Proceedings of the Royal Society of Medicine*, 60:881-883, Sept., 1967.

The diagnosis of 'light for dates' is discussed as are the increase in neonatal mortality in such infants, the association of the condition with hypoglycemia, morbidity in such infants, and the possible association of malnutrition with the condition. Also presented are preliminary results of a study by the author and his colleagues in which babies in the Newcastle Maternity Survey of 1960-62 were followed to the age of five years. "These results confirm the existence of a tendency for 'light for dates' babies to show inferior subsequent development." Two other short papers on the subject of "The 'Small for Dates' Baby" precede Dr. Neligan's article. The first by James Walker is entitled "'Small for Dates' - Clinical Aspects" and the second by S. Wigglesworth is entitled "Pathological and Experimental Aspects of Foetal Growth Retardation."

690. Neligan, G.A.: "Hypoglycaemia in the Newborn," *Proceedings of the Royal Society of Medicine*, 57:1059-1061, Nov., 1964.

The condition, its treatment, its occurrence in infants of low birth weight, probable causes of clinical symptoms, and the risk of brain damage are considered.

691. Neligan, Gerald A.; Robson, Evelyn; and Watson, Joseph: "Hypoglycemia in the Newborn; A Sequel of Intrauterine Malnutrition," *Lancet*, 1:1282-1284, June 15, 1963.

Blood sugar levels were obtained shortly after birth and studied in 33 newborns who were "poorly nourished at birth as judged by a low rating on a weight/maturity scale" and in 33 well-nourished neonates. Methods are described. All the infants were free from symptoms of hypoglycemia. The blood sugar levels in the former cases were found to be significantly lower than in the later group of cases. Out of 12 cases of symptomatic hypoglycemia, previously detected by the authors, 11 would have been included in the poorly nourished group. Implications are discussed.

692. Nelson, George H., and Freedman, Donald S.: "Relationship Between Amniotic Fluid Triglyceride Levels and Fetal Maturity," *American Journal of Obstetrics and Gynecology*, 111:930-933, Dec. 1, 1971.

One hundred samples of amniotic fluid were studied in order to determine the value of triglyceride level as an indicator of fetal maturity. Results described relationships found between triglyceride concentration and estimated gestational age and estimated fetal weight. Correlations were also made "between high triglyceride concentrations and other tests for fetal maturity." Although high triglyceride levels were generally revealed near term, low triglyceride levels were not found to be of prognostic significance. "As a test for fetal maturity, amniotic fluid triglyceride determination offers no advantage over the standard amniotic fluid analyses; however, this determination may be useful as an additional parameter upon which intelligent decisions of intervention can be made."

693. Nelson, Karin B.: "The 'Continuum of Reproductive Casualty,'" in *Studies in Infancy*, based on a study group held at Oxford, September, 1966; edited by Ronald MacKeith and Martin Bax. London: Spastics International Medical Publications in association with Heinemann Medical Books, 1968. Pp 100-109. (Clinical on Developmental Medicine, No. 27.)

In this article the "validity and current utility" of the hypothesis of the 'continuum of reproductive casualty' are reviewed. The hypothesis is explained and discussed. Numerous clinical studies are described with those concerned with the conditions of cerebral palsy, epilepsy, mental deficiency, and behavior and learning disorders considered under those headings. Conclusions regarding the hypothesis are discussed.

694. Nelson, T.C.: "The Relationship between Melena and Hyperbilirubinemia in Mature Neonates," *Biologia Neonatorum*, 8:267-273, 1965.

Serum bilirubin levels were assessed in 28 full term newborns with melena and compared to those of 46 normal newborns. Methods are described. Much higher levels were found in the infants with melena. "The probable cause of this hyperbilirubinemia in melena is erythrocyte destruction and eventual absorption of bilirubin in the gastro-intestinal tract."

695. Nesbitt, Robert E.L., Jr., and Aubry, Richard H.: High Risk Obstetrics. II. Value of Semiobjective Grading System in Identifying the Vulnerable Group," *American Journal of Obstetrics and Gynecology*, 103:972-985, Apr. 1, 1969. (Series: For I see #31, III see #32, IV see #721, V see #33, VI see #250.)

Described is a method used to score obstetrical ward patients on certain adverse factors. An index score sheet is displayed. The score, computed at the first prenatal visit, is the numerical value resulting after the sum of all penalties (adverse factors) in eight categories has been subtracted from a perfect score of 100. No adjustment in score is made during pregnancy. One thousand and one ward patients, scored by this method, were grouped on the basis of results into three risk categories: high (299), moderate (390), and low (312). Detailed results are presented in 11 tables including ones on perinatal outcome and causes of perinatal mortality and morbidity. "In general, the risk of antenatal and intrapartum complications as well as poor perinatal outcome among the low scoring patients...was twice as great as that observed in the remaining 71% of the patients. With limitations and modification needs being noted, it is concluded that use of such an index has merit as a screening device for prenatal patients in order that the high risk patient may receive concentrated attention.

696. Neuman, M.R.; Critchfield, F.H.; and Lin, W.C.: "An Intravaginal Fetal ECG Telemetry System," *Obstetrics and Gynecology*, 35:96-103, Jan., 1970.

The value of continuous monitoring of the fetal heart rate to detect fetal distress is stated, and "the basic requirements for such a monitoring system" are listed. A radio telemetry system that utilizes "a microelectronic transmitter placed intravaginally" and that meets these requirements is described. The method has been found to be reliable and has been used in both a large research hospital and a community hospital.

697. Newcomb, Mary Ann: "Seal Bluff Development Center," *Children's House*, 5:1:13-19, August, 1971.

The functioning of this Center for multihandicapped infants, located in Contra Costa County, California, is described. After an infant is referred, a home visit is made by a medical social worker, and the infant and his parents come to the Center for complete evaluation. The child is then seen regularly as an outpatient, and a "home visitor" is assigned to the case. The importance of the role of these volunteer visitors and their training are explained. They fulfill the need for immediate intervention before the infant is able to attend the Center full time. At any one time 12 infants attend the Center on a six-hour daily program. They are discharged at the age of three years to attend various other schools. The philosophy and aspects of the curriculum of the Center are described.

698. Newman, L.R.: "Phototherapy in the Prevention and Treatment of Neonatal Hyperbilirubinemia," *Journal of the Albert Einstein Medical Center*, 17:30-35, 1969.

A study was conducted with the purpose of proving the breakdown of bilirubin in well premature infants by using artificial blue light. The experimental group began exposure within 12 hours of birth for a total of 144 hours. Bilirubin levels for both experimentals and controls were obtained after birth and daily for six days. The results indicate that phototherapy was an effective and harmless method for preventing and treating neonatal hyperbilirubinemia.

699. "New Test Checks Opticokinetic Response of Neonate," *Journal of the American Medical Association*, 197:13:42, Sept. 26, 1966.

A simple test in which "a bobbing, swinging red rubber ball" is "dangled from a rubber band in front of the neonate's face" is presented and demonstrated. The technique is felt to provide evidence of an intact nervous system based on an alert response by the neonate. The method has been used at the Children's Hospital and Medical Center and at the Lying-in-Hospital in Boston. It is stressed that a poor visual response "does not necessarily indicate a poor prognosis."

700. Nielsen, Helle H.: "Psychological Appraisal of Children with Cerebral Palsy: A Survey of 128 Re-assessed Cases," *Developmental Medicine and Child Neurology*, 13:707-720, Dec., 1971.

A retrospective study of "the test-retest reliability of intelligence evaluation of 128 cerebral palsied children" is described. "The mean age at initial testing was 3.9 years and at final testing 7.9 years." The subjects, the eight tests used, and the methods of analysis are explained and results and conclusions are presented. The findings indicate "that a large proportion of children with cerebral palsy can be assessed with reasonable accuracy at a relatively early age by commonly applied evaluation methods; children with neurological and intellectual deficits may be expected to show at least the same, if not a higher degree of IQ stability than non-damaged children."

701. Niswander, Kenneth R.; Capraro, Vincent J.; and Van Coevering, Russel J.: "Estimation of Birth Weight by Quantified External Uterine Measurements," *Obstetrics and Gynecology*, 36:294-298, Aug., 1970.

Two methods for "quantifying simple external uterine measurements" are described and were employed on two groups of women near term. The methods were not found to be accurate in estimating birth weight.

702. Niswander, Kenneth R.; Friedman, Emanual A.; Hoover, David B.; Pietrowski, Helen; and Westphal, Milton C.: "Fetal Morbidity Following Potentially Anoxigenic Obstetric Conditions. I. Abruptio Placentae," *American Journal of Obstetrics and Gynecology*, 95:838-845, July 15, 1966. (Series: For II see #703, III see #704.)

Reports are made in this and the two following articles on investigations undertaken to determine relationships between morbidity and the obstetrical conditions of abruptio placentae, placenta previa, and prolapse of the umbilical cord, respectively. Records from 17,265 cases in the Collaborative Project were studied. In this first study, the authors found 199 documented cases of abruptio placentae. Relationships found between this condition and race, parity, maternal age, pregnancy duration, toxemia, and fetal loss are described. Fifty-two per cent of these infants weighed less than 2,500 grams. Based on Apgar scores, the neonatal conditions of the infants "was frequently precarious," with the condition of the prematures being worse than the mature infants. Data is presented on examinations given at birth, 4 months, 8 months, and 1 year of age, and implications are considered. The predictability in this study of the Apgar score is also discussed.

703. Niswander, Kenneth R.; Friedman, Emanuel A.; Hoover, David B.; Pietrowski, Helen; and Westphal, Milton: "Fetal Morbidity Following Potentially Anoxigenic Obstetric Conditions. II. Placenta Previa," *American Journal of Obstetrics and Gynecology*, 95:846-852, July 15, 1966. (Series: For I see #702, III see #704.)

Using the records of 17,265 cases in the Collaborative Project, the authors undertook an investigation primarily to determine whether the anoxia frequently associated with placenta previa increased the risk of neurological damage to both premature and mature infants. One hundred three cases of placenta previa were found. Relationships discovered between the condition and possible etiological factors are described. The importance of the method of treatment to fetal outcome is also considered. Tables show the incidences of depressed Apgar scores as well as data on postnatal examinations. By one year of age, although the mature placenta previa babies "fared as well" neurologically as the mature controls, the premature placenta previa babies were "much less likely to be normal than the premature baby without placenta previa."

704. Niswander, Kenneth R.; Friedman, Emanual A.; Hoover, David B.; Pietrowski, Helen; and Westphal, Milton: "Fetal Morbidity Following Potentially Anoxigenic Obstetric Conditions. III. Prolapse of the Umbilical Cord," *American Journal of Obstetrics and Gynecology*, 95:853-859, July 15, 1966. (Series: For I see #702, II see #703)

Using the records of 17,265 cases in the Collaborative Project, the authors undertook an investigation to study the relationship between prolapse of the umbilical cord and later neurological status. Eighty cases of prolapse of the umbilical cord were found. Relationships discovered between this condition and possible etiological factors are described as are the cases of prenatal mortality (27 out of 80). The importance of "active" therapy is discussed. Although both premature and mature babies born following prolapse of the umbilical cord were likely to be depressed as measured by Apgar scores, later examinations showed these children "to fare as well as the controls." The importance of prematurity as a causative factor in neurological damage is emphasized.

705. Niswander, Kenneth R.; Westphal, Milton C.; and Seekree, Swtantarta: "Amniocentesis in Management of the Rh Problem," *Obstetrics and Gynecology*, 30:646-651, Nov., 1967.

The experience of the authors with amniocentesis and intrauterine transfusion is reported. One hundred and sixty-one amniotic fluid samples were obtained from 74 patients and optical density (△OD) was determined with a spectrophometer. A decision was then made on whether or not to transfuse the fetus. Numerous determinations were made at birth on the cord blood of the infants, and clinical condition was assessed. Although the results of spectrophotometer analysis of the samples correlated well with the outcome in the "mildly or moderately ill (erythroblastotic) infants," "in the presence of severe hemolytic disease or hydrops we find poor correlation between the amniotic fluid analysis and the fetal outcome in over 40% of patients." These patients are described.

706. North, A. Frederick, Jr.: "Small-For-Dates Neonates. I. Maternal, Gestational, and Neonatal Characteristics," *Pediatrics*, 38:1013-1019, Dec., 1966.

Compared on 35 variables concerning "maternal and gestational features, perinatal survival, and neonatal complications" were the records from two groups of "small-for-dates" infants (as defined), the records of two groups of "pre-term" infants (as defined) and the records of a group of "average" infants (as defined). The variables are listed, and the results of the individual comparisons are reported. "The group of small-for-dates neonates differed markedly from the pre-term infants in 15 of the 35 variables examined and from the 'average' infants in 31 of the 35 variables examined."

707. Northcott, Winifred: *Staff Training on a State-Wide Basis*. Austin, Texas: University of Texas, Program for Staff Training of Exemplary Early Childhood Centers for Handicapped Children. [1971]. 36 pp. (Staff Training Prototype Series Vol. II, No. 1.)

This material was designed to be used in the accompaniment of slides. Described in the staff training program and other aspects of the UNISTAPS (University of Minnesota), State Department of Education and Minneapolis Public Schools) Exemplary Preprimary Program for Hearing-Impaired Children in Minnesota. In Part I "The Family Oriented, Home-Centered Infant Program for the 0 - 3 1/2 group and the Child-Centered, School-Oriented Program for the 3 1/2 - 6 year olds" are explained. In Part II efforts that have been made to coordinate training programs are described. In the 1 1/2 years the project has been funded two state conferences for professionals and two state conferences for parents have been held. Also listed and discussed are the objectives and the "general areas of concentration" in "staff training within the Minneapolis preprimary program." Factors on a statewide basis and "within the exemplary preprimary program" that are indicative of the success of this program are listed. Numerous forms used are included.

708. Odell, Gerald B.; Bruce, G.N.; and Rosenberg, Leon A.: "Studies in Kernicterus. III. The Saturation of Serum Proteins with Bilirubin During Neonatal Life and Its Relationship to Brain Damage at Five Years," *Journal of Pediatrics*, 76:12-21, Jan., 1970. (Series: For II see #710.)

A group of 32 children, who had been jaundiced during neonatal life, were given psychometric tests at the age of five years to determine evidence of brain damage. Eighteen were found to be brain damaged; 14 were considered normal. Comparison was made between the presence or absence of brain damage and clinical and lab examinations were made during the period of neonatal hyperbilirubinemia. No significant correlations were found between the presence or absence of brain damage and the birth weights, sex, presence or absence of hemolytic disease, exchange transfusion, and the maximum serum bilirubin concentrations. A significant correlation was found between the presence or absence of brain damage and the saturation of the serum proteins with bilirubin during infancy, thus indicating the importance of the saturation index in predicting the risk of CNS damage in infants.

709. Odell, Gerald B.; Cohen, Sanford N.; and Gordes, Ellen H.: "Administration of Albumin in the Management of Hyperbilirubinemia by Exchange Transfusions," *Pediatrics*, 30:613-621, Oct., 1962.

The results of removing bilirubin by simple exchange transfusion were compared to the results when albumin was administered prior to the transfusion in jaundiced infants. The infants, the methods used, and the findings are described. Bilirubin was found to be more efficiently removed when albumin was administered. "The administration of one gram of albumin per kilogram of body weight one to two hours prior to the procedure resulted in the removal by exchange transfusion of an average of 41% more bilirubin per kilogram of birth weight," Other results are reported.

710. Odell, Gerald B.; Cohen, Sanford N.; and Kelly, Patrick C.: "Studies in Kernicterus. II. The Determination of the Saturation of Serum Albumin with Bilirubin," *Journal of Pediatrics*, 74:214-230, Feb., 1969. (Series: For III see #708.)

Described in detail are a method "for estimating the relative concentration of free bilirubin in serum by measurement of the saturation of the carrier, albumin, for bilirubin" and the application of this technique to the sera from neonates having hyperbilirubinemia either due or not due to hemolytic disease. "Infants without hemolytic disease showed a direct correlation between the saturation of their albumin with bilirubin and the bilirubin protein concentration ratio of the serum. Infants with hemolytic disease did not show such a correlation until after they had had an exchange transfusion." It is thus felt that infants at risk of kernicterus can be more precisely selected by using this method.

711. O'Doherty, N.J.: "Neurological Foundations of Motor Behaviour in Infancy," *Physiotherapy*, 57:144-148, April, 1971.

Nine "points fundamental to appreciating the neurological foundations of motor behaviour in infancy" are listed and individually discussed. Considered are "(1) total motor performance," "(2) primitive motor responses," "(3) definitive motor actions," "(4) level of arousal," "(5) dissolution and evolution of items," "(6) method of examination," "(7) use of standard form," "(8) understanding motor dysfunction," and "(9) method of treatment."

712. O'Doherty, Neil: "A Hearing Test Applicable to the Crying Newborn Infant: Preliminary Report," *Developmental Medicine and Child Neurology*, 10:380-383, June, 1968.

A method for assessing hearing in the spontaneously crying newborn is described. Vocalization from the examiner usually produced a quieting response which was graded according to the degree of the response. It was concluded that the response may be important in the assessment of cerebral status "if the response is one of attention mediated at the cortical level."

713. "Of Rodents, Men and Memories," *Medical World News*, 11:30, Mar. 13, 1970.

Studies concerned with the development of memory are briefly reported. The importance of environmental stimulation in brain development is stressed.

714. Ogg, H. Lorraine: "Measuring and Evaluating the Gait Patterns of Children," *Journal of the American Physical Therapy Association*, 43:717-720, Oct., 1963.

A technique for measuring the gait of children, which was used in a pilot study involving 33 normal and handicapped children, is presented. In eight described steps, four gait factors are measured and evaluated. The four defined factors are "(1) stride length, (2) dynamic base, (3) angle of foot placement, and (4) step distance." No extensive or expensive equipment is needed. On the basis of the pilot study results, "several conclusions were drawn regarding the gait factors being measured," and these are presented. This technique appeared "to be a valid and useful tool" with regard to measuring the factors defined.

715. Oh, William; Arbit, Jack; Blonsky, E. Richard; and Cassell, Sylvia: "Neurologic and Psychometric Follow-Up Study of Rh-Erythroblastotic Infants Requiring Intrauterine Blood Transfusion," *American Journal of Obstetrics and Gynecology*, 110:330-335, June 1, 1971.

Ten such surviving infants were matched with normal infants of the same ages and were evaluated neurologically, psychometrically, and electroencephalographically as described between the ages of 12 to 54 months. Data on the studied children as young infants and at follow-up are given. Results indicated no significant differences between the two groups. "These results suggest that severe Rh-erythroblastotic infants who received intrauterine blood transfusions have a normal developmental performance at a later age."

716. O'Leary, James A., and Feldman, Martha: "Amniotic Fluid Osmolality in the Determination of Fetal Age and Welfare," *Obstetrics and Gynecology*, 36:525-527, Oct., 1970.

In the reported study involving 225 normal and high risk pregnancies, the determination of amniotic fluid osmolality was found to be of "no clinical value in assessing fetal age or welfare."

717. Oppe, Thomas E.: "Risk Registers for Babies," *Developmental Medicine and Child Neurology*, 9:13-21, Feb., 1967.

Critically examined in this article are the principles of the at-risk concept for the early detection of handicapped children. The results of an effort to assess the value and usage of the "at-risk registers" then organized in Britain (1967) are reported. Revised criteria are outlined as a result of the assessment. These new criteria are suggested in an attempt to clarify terms of inclusion and to reduce the number of infants placed at risk.

718. Ose, Toru; Tsuruhara, Tsuneo; Araki, Masayoshi; Hanaoka, Toshiyuki; and Bush, Ovid B., Jr.: "Follow-Up Study of Exchange Transfusion for Hyperbilirubinemia in Infants in Japan," *Pediatrics*, 40:196-201, Aug., 1967.

A questionnaire was sent in 1964 to the parents of 157 consecutive neonatal patients who had received 251 exchange transfusions for hyperbilirubinemia since December, 1957 to determine the status of the child and to ask that the child be brought for examination. Ninety-four and two-tenths per cent of these children were followed-up including 17 who had died. Results are reported concerning the causes of the hyperbilirubinemia, the incidence of cerebral palsy, the developmental testing results, the relationship found between the height of the bilirubin level and developmental retardation, the relationship between serum bilirubin levels and brain damage, and the relationship between the cause of the hyperbilirubinemia and brain damage. "Ninety per cent of the patients who had a bilirubin level of 35 mg/100 ml and above either died or had cerebral palsy or physical retardation." Of the 131 living cases followed, "there were 17 (13.0%) patients who had definite cerebral palsy, 21 (16.0%) who were physically retarded, and 93 (71.0%) who were normal." It was felt that the results indicated "a definite relation between the height of the bilirubin and the development of cerebral palsy and/or developmental retardation."

719. Osofsky, Howard J.: "Antenatal Malnutrition: Its Relationship to Subsequent Infant and Child Development," *American Journal of Obstetrics and Gynecology*, 105:1150-1159, Dec. 1, 1969.

An overview of current knowledge, based on "the hypothesis that malnutrition prior to birth relates to subsequent and specific developmental problems," is presented. Animal and human studies in the area are reviewed with the difficulties involved in human studies noted. Conclusions and implications are given.

720. Osofsky, Howard J.; Long, Robert E.; O'Connell, Edward J., Jr.; and Marshall, Linda D.: "Estrogen Excretion During Pregnancy in a High-Risk Population," *American Journal of Obstetrics and Gynecology*, 109:1-7, Jan. 1, 1971.

Presented in this paper is a study undertaken "to further assess the value of utilizing estrogen/creatinine ratios as a clinical adjunct in high-risk pregnancies." One thousand two hundred ninety-two urine specimens were obtained from 219 low-income, adolescent, pregnant patients, and estrogen/creatinine ratios were determined. The curve of the plotted values was found to be "almost identical" in slope and direction to those previously known for 24 hour collections. No extremely low values later than the 34th week of pregnancy were noted, and the outcome in all the pregnancies was "favorable"; thus, the prognostic value of the method was demonstrated. A high correlation was found between average estriol values and infant birth weight. A difference in values was noted for prematurely born infants and small for dates infants. Implications are considered.

721. Osofsky, Howard J.; Nesbitt, Robert E.L.; and Hagen, John H.: "High-Risk Obstetrics. IV. Estrogen/Creatinine Ratios in Routine Urine Samples as a Method of Screening a High-Risk Obstetric Population," *American Journal of Obstetrics and Gynecology*, 106:692-698, Mar. 1, 1970. (Series: For I see #31, II see #695, III see #32, V see #33, VI see #250.)

The difficulties with respect to "methodalogic and motivational factors," involved in the serial 24 hour urinary estrogen excretion measurement method, are mentioned. An alternate approach is presented in which estriol/creatinine ratios, determined from single urine specimens, were utilized in high-risk pregnancies. This method was then compared for validity with the 24 hour estriol excretion method. Forty-two 24 hour urine specimens were obtained from 16 high-risk adolescent obstetric patients. Three hundred ninety-two single urine specimens were obtained from 84 similar patients. The characteristics of the patients are described. Only 25% of the 24 hour urine specimens were accurate. The results presented show that the curve resulting from the plotting of estrogen/creatinine ratios was "almost identical in slope and direction" to those previously determined for 24 hour urinary estrogen excretion. The utility of the estrogen/creatinine ratio method is discussed.

722. Ostwald, P.F.; Phibbs, R.; and Fox, S.: "Diagnostic Use of Infant Cry," *Biologia Neonatorum*, 13:68-82, 1968.

The literature on the subject is reviewed and a study by the authors is reported in which the relationship between the cry factors, duration and pitch, and the clinical status of infants was examined. Cry illicitation and diagnostic methods are described. On the basis of all neurological, developmental, maternal, etc., data available, 13 infants were divided into three groups: normal, questionably impaired, and abnormal. The cases are described in detail. Three hundred fifty-six cries were analyzed with the methods given. "Duration measurements showed no consistent differences between the three groups. Pitch measurements showed a marked increase of the fundamental tone only among infants rated as impaired or abnormal." Implications are considered.

723. Ounsted, Margaret: "Maternal Constraint of Foetal Growth in Man," *Developmental Medicine and Child Neurology*, 7:479-491, Oct., 1965.

Two hundred twenty-five unselected infants and their mothers ascertained before the 20th week of gestation were compared with 90 "growth-retarded" infants and their mothers with respect to numerous factors often associated with low birth weight. The two groups did not differ significantly at any point in length of gestation. When the weights of siblings in the two groups were compared, a highly significant difference was noted. The results of two substudies are also reported. On the basis of results, "it is suggested that the mothers of infants whose birth weight is exceptionally low in relation to the duration of pregnancy regularly constrain the intrauterine growth of all their young." Ramifications are discussed.

724. Overall, James C., Jr.: "Neonatal Bacterial Meningitis; Analysis of Predisposing Factors and Outcome Compared with Matched Control Subjects," *Journal of Pediatrics*, 76:499-511, Apr., 1970.

Using data from the Collaborative Perinatal Research Study, 25 infants having had neonatal meningitis, as defined, and 46 matched controls were studied to "determine: (1) the factors predisposing to the development of meningitis," "(2) the conditions associated with the acute illness which correlated with poor outcome," and (3) the occurrence of sequelae in the survivors as determined from standardized follow-up information. Findings concerning etiological and predisposing factors, age of onset, clinical symptoms, lab results are presented and discussed. Also considered are neonatal immunity and management implications. The fatality rate in the group with the illness was 60% with five of the ten survivors having sequelae. A lengthy bibliography is included.

725. Overall, James C., Jr., and Glasgow, Lovell A.: "Virus Infections of the Fetus and Newborn Infant," *Journal of Pediatrics*, 77:315-333, Aug., 1970.

Included in this discussion are the following related topics: (1) pathogenic factors in such viral infections, (2) the frequency of such viral infections, (3) the clinical manifestations of cytomegalic inclusion disease, rubella, coxsackie virus, other picornaviruses, herpes simplex, poxviruses, varicella - zoster infections, and mumps, (4) the laboratory diagnosis of viral infections in the neonate, and (5) the therapy for virus infections in the neonate. A lengthy bibliography follows the text.

726. Page, Dorothy: "Developmental Analysis in Evaluation and Treatment of Cerebral Palsy," *Journal of the American Physical Therapy Association*, 42:177-179, Mar., 1962.

A program that emphasizes the understanding of early development and integrated functioning in evaluating and treating the cerebral palsied child is described. "The base level of efficient and integrated function" should be determined for each child during the evaluation process. Numerous questions and observations to be made during this process are listed. The treatment program aims at increasing the child's level of function in natural developmental sequence. Parental participation in the program is discussed and positive results of the program which have been observed are presented.

727. Paine, Richmond: "Characteristics of Fits in the Newborn Period," in *Studies in Infancy*, based on a study group held at Oxford, September, 1966; edited by Ronald MacKeith and Martin Bax. London: Spastics International Medical Publications in association with Heinemann Medical Books, 1968. pp. 70-77. (Clinics in Developmental Medicine, No. 27.)

Discussed in this paper are the causes of neonatal fits, the treatment for such convulsions, and the prognosis for infants suffering convulsions. It is felt that the details of delivery are usually the primary considerations in evaluating a newborn with convulsions. Anticonvulsant drugs should be given after the specific causal factor has been determined, or in the absence of an identifiable cause. The occurrence of neonatal fits is followed by an increased risk of residual brain damage in the form of cerebral palsy, mental retardation, or epilepsy. It is believed that approximately half of the infants suffering neonatal convulsions are later neurologically normal.

728. Paine, Richmond: "The Future of the 'Floppy Infant': A Follow-Up Study of 133 Patients," *Developmental Medicine and Child Neurology*, 5:115-124, April, 1963.

The term 'floppy infant' is traced historically, and conditions in which hypotonia is found are enumerated. A study is then described in which 133 children, ages 6 months to 2 1/2 years, were referred to the author mainly because of delayed motor development. Hypotonia was confirmed on examination. At this initial diagnosis, 68 were believed to have cerebral palsy, and 21 were thought to have "congenital hypotonia." One hundred and twelve of the children were given follow-up examinations at school age. The "initial and final diagnoses" are given in Table II. Most of those originally diagnosed as cerebral palsied were found to be athetoid or spastic at follow-up. The 19 congenital hypotonic patients seen at follow-up are further described, and divided into three groups. It is felt that the diagnosis of "congenital hypotonia" is "one of exclusion," and needs to be validated at a follow-up examination. A muscle biopsy is a much needed aid in giving a final diagnosis.

729. Paine, Richmond S.: "Cerebral Palsy: Symptoms and Signs of Diagnostic and Prognostic Significance," *Current Practice in Orthopaedic Surgery*, 3:39-58, 1966.

The cerebral palsies are defined and classified with each type also defined. Then described in detail are the "diagnostic signs in the neonatal period" and the "diagnostic signs in infancy." Photographs often illustrate these signs. Differential diagnosis is considered and signs which may aid the physician in determining the prognosis are presented. Four conclusions are listed.

730. Paine, Richmond S.: "Early Recognition of Neuromotor Disability in Infants of Low Birthweight," *Developmental Medicine and Child Neurology*, 11:455-459, Aug., 1969.

Some of the early signs of neuromotor disability in low birthweight infants are described. These signs should be constantly reassessed in the process of diagnosis. The consensus from other studies is that early motor and reflex maturation is a function of age since conception rather than age since birth. Therefore, it is suggested that infants of low birthweight be judged according to the estimated conceptual age.

731. Paine, Richmond S.: "The Evaluation of Infantile Postural Reflexes in the Presence of Chronic Brain Syndromes," *Developmental Medicine and Child Neurology*, 6:345-361, Aug., 1964.

Described is a study in which 129 infants, referred for neurological consultation because of abnormal motor development, were given serial examinations at three month intervals until at least the age of three. The majority were diagnosed as having some type of cerebral palsy with the two most common types being "spastic tetraparesis" and "choreoathetosis." The authors concern in the majority of the article is to describe the evaluation of each of the major postural reflexes in these 129 cases. Considered are muscle tone, tendon and abdominal reflexes, the Moro reflex, "asymmetric tonic neck responses," "neck righting reflexes," the supporting reaction of the legs, the placing reaction, automatic stepping, hand function, the parachute reaction, the Landau reflex, and the response from vertical suspension in space. The cases of seven infants, who at early examination appeared to have cerebral palsy but by age three or later, had "normal motor function," are briefly reviewed.

732. Paine, Richmond S.: "Neurological Grand Rounds: Ataxia and Abnormal Gaits in Children," *Clinical Proceedings of the Children's Hospital of the District of Columbia*, 22:43-51, Feb., 1966.

Factors to be included in an examination of a child's gait and various types of abnormal gaits are described.

733. Paine, Richmond S.: "Neurologic Examination of Infants and Children," *Pediatric Clinics of North America*, 7:471-510, Aug., 1960.

The modifications made in the neurologic examination for infants and children are considered, and a simple form for recording the data of the examination is presented. The process of the neurologic examination of infants is described by discussing the components of observation, assessment of sensoral function, administration of tests that require minimal handling, administration of tests that require greater handling, the developmental evaluation, and the synthesis of findings. Attention is then given to the neurologic examination of the older child.

734. Paine, Richmond S.: "On the Treatment of Cerebral Palsy; The Outcome of 177 Patients, 74 Totally Untreated," *Pediatrics*, 29:605-616, Apr., 1962.

One hundred and three cerebral palsied patients who had received "intensive physical therapy, with or without bracing and orthopedic surgery" were compared to 74 cerebral palsied patients who had received no treatment. All were over age 14 at the follow-up examination and were classified in groups as "spastic hemiparesis" (78), "spastic tetraparesis" (33), or "primarily extrapyramidal disordered and unwanted movement" (66). Data on the patients and comparison results are presented by group. "The data presented suggest that intensive physical therapy of the type available from 1930 to 1950 had its chief effect on patients with at least moderately severe spastic hemiparesis or tetraparesis, who appeared to develop better gaits if treated, and had fewer contractures."

735. Paine, Richmond S.: "Prenatal and Perinatal Factors Affecting the Central Nervous System," *Clinical Proceedings of Children's Hospital of the District of Columbia*, 24:277-293, Sept., 1968.

Numerous studies concerning cerebral palsy, mental retardation, and minimal brain dysfunction are reviewed as to the prenatal and perinatal abnormalities that have been found to be associated with these conditions. The disadvantages of retrospective studies and the advantages of prospective studies are rated.

736. Paine, Richmond S.; Brazelton, T. Berry; Donovan, Desmond E.; Drorbaugh, James E.; Hubbell, John P., Jr.; and, Sears, E. Manning: "Evaluation of Postural Reflexes in Normal Infants and in the Presence of Chronic Brain Syndromes," *Neurology*, 14 1036-1048, Nov., 1964.

"In connection with a study of the evaluation of postural reflexes in neurologically abnormal infants," 66 "normal" infants, as defined, participating in the Collaborative Study, were examined at regular 4-6 week intervals during the first year of their lives to determine the evaluation of neurological signs and the normal range of variation. Individually discussed are the results concerning muscle tone, reflexes, Moro reflex, tonic neck reflexes, neck-righting reflexes, placing reaction, stepping, supporting reaction, parachute reflex, Landau reflex, vertical suspension in space, hand grasp, and developmental milestones. Thirteen conclusions are listed in the "Summary" along with 10 conclusions from a "serial study of 200 abnormal infants over a three-year period."

737. Paine, Richmond S., and Fenichel, Gerald M.: "Neurology Grand Rounds: Infantile Hypotonia," *Clinical Proceedings of Children's Hospital of the District of Columbia*, 21:175-189, July-Aug., 1965.

Diseases of the upper and of the lower motor neurons which can produce infantile hypotonia are discussed. Dr. Paine described the results of a review he made of 119 patients, ages 6 months to 2 years, "who were referred because of slow development or hypotonia." Various diagnostic tools and tests and their uses are described.

738. Paine, Richmond S., and Oppe, Thomas E.: *Neurological Examination of Children*. Foreword by Lord Brain. London: Spastics Society Medical Education and Information Unit in association with Heinemann Medical Books, 1966. 279 pp. (Clinics in Developmental Medicine, Nos. 20/21.)

In this book the neurological examination as it pertains to children is fully described, and the significance of possible findings is discussed. After emphasizing the importance of the patient's complete history, considering pertinent symptoms, and briefly discussing the general physical examination, the authors present an outline for recording information from the neurological examination. The subsequent text generally follows this outline. The mental condition of the child and "Special Tests of Cerebral Function" are considered. Three chapters are then devoted to describing the methods used when examining the speech, head, neck, spine, and the individual cranial nerves of the child. In other chapters, methods of assessing posture and gait; reflex activity; and motor, sensory and autonomic functions are described. In the final chapter some special techniques used in neurological assessment, such as electroencephalography, electromyography, biopsy, etc., are discussed.

739. Pan American Health Organization. Advisory Committee on Medical Research. *Perinatal Factors Affecting Human Development*. Proceedings of the Special Session held during the Eighth Meeting of the PAHO Advisory Committee on Medical Research, June 10, 1969. Washington, D.C.: The Organization, 1969. 253 pp. (Pan American Sanitary Bureau Scientific publication No. 185.)

The papers presented at this meeting are contained in this volume. They are concerned with various factors that may affect the development of the fetus during pregnancy and labor. Also considered are methods developed to evaluate fetal condition. "Discussions" are included.

740. Parmelee, A.H.: "Neurological Examination of the Newborn," in *Exceptional Infant, Volume 2; Studies in Abnormalities* edited by Jerome Hellmuth. New York: Brunner/Mazel, 1971. Pp 3-23.

Various approaches to the neurological appraisal of the newborn are reviewed. Three major purposes of the newborn neurological examination are listed, and several factors that should be considered when assessing the examination results are discussed. "Three types of situations in which a neurological evaluation is desired" are separately described. These are when "neonatal neurological problems are obvious," when neurological progress is being followed on a day-to-day basis, and when a long term "predictive neurological evaluation" is made. Numerous studies are mentioned and are cited in the bibliography.

741. Parmelee, A.H., Jr.; Minkowski, A.; Dargassies, Suzanne Saint-Anne; Dreyfus-Brisac, Colette; Lezine, Irene; Berges, J.; Chervin, Genevieve; and, Stern, Evelyn: "Neurological Evaluation of the Premature Infant; A Follow-up Study," *Biology of the Neonate*, 15:65-78, 1970.

Considered is the relationship found between the results of neonatal neurological examinations and neurological examinations "generally done between 2 and 6 years of age" on 187 children, the majority of whom had been premature. The subjects and examination methods are described. Numerous tables detail the results of comparisons. The neonatal examination was found to have significant predictive value based on correlation with the childhood examination. Those children who had been premature or small for gestational age at birth were found to have a disproportionately high incidence of childhood neurological pathology, but such incidence had not been evident with these children at their neonatal exams. The reverse trend was revealed for those children whose birth weights had been "above the 90th percentile for their gestational age." "There was also a definite tendency for neurological pathology in the neonate to improve." Implications are discussed.

742. Parmelee, Arthur H., Jr.: "A Critical Evaluation of the Moro Reflex," *Pediatrics*, 33:773-788, May, 1964.

The Moro reflex is described, and conflicting beliefs concerning the elicitation and the response of the reflex are discussed. A historical review of studies on the reflex is then presented followed by a three-part described study in which an attempt was made "to determine in some systematic way an optimal stimulus and response rating scale." Each part of the study is individually presented, including findings and "comment." Various stimuli were tested for effectiveness, and scoring techniques to measure hand and arm movement during the response and state of arousal at the time of elicitation were devised. Both motion picture analysis and direct observation were used in the study. Methods and results of each part are presented in condensed form in the "Summary."

743. Parmelee, Arthur H., Jr.: "The Doctor and the Handicapped Child," *Children*, 9:189-193, Sept.-Oct., 1962.

The role of the doctor in the process of helping handicapped children and their parents is discussed. Factors involved with handicaps noted at birth are considered separately from those involved with handicapping conditions noted later.

744. Parmelee, Arthur H., Jr., and Schulte, Franz J.: "Developmental Testing of Pre-Term and Small-for-Date Infants," *Pediatrics*, 45:21-28, Jan., 1970.

In an earlier study (Schulte, Michaelis, Linke, Nolte, 1968) twenty-six pre-term infants were found to have "significantly slower nerve conduction velocities" as neonates than did 25 normal, full-term neonates and 22 small-for-date neonates. These same infants were given Gesell developmental tests around the age of 40 weeks in order "to determine to what degree performance later in infancy is dependent on neurological maturity at birth." The infants, the method used, the results, and the implications are presented. "Findings substantiate the concept that performance on the Gesell schedules is dependent on time from conception rather than time from birth. Pre-term infants should have their age determined from their expected date of birth for purposes of calculating a developmental quotient."

745. Patel, Daksha A.; Pildes, Rosita S.; and Behrman, Richard E.: "Failure of Phototherapy to Reduce Serum Bilirubin in Newborn Infants," *Journal of Pediatrics*, 77:1048-1051, Dec., 1970.

Data from eight cases are presented to suggest that neonatal jaundice is not always reduced when phototherapy is used.

746. Paterson, P.J.: "The Effects of Asphyxia on the Mid-Gestation Human Foetus," *Biology of the Neonate*, 17:285-291, 1971.

"The metabolic effects of asphyxia on the immature human foetus were studied over a 20-minute period." Twenty fetuses were studied with detailed methods and data reported. "Blood pH fell whilst PCO_2, base deficit and lactate increased. Plasma potassium did not show consistent changes. The mean hepatic tissue carbohydrate concentration and the blood glucose level fell during the study."

747. Paul, Richard H., and Hon, Edward H.: "A Clinical Fetal Monitor," *Obstetrics and Gynecology*, 35:161-169, Feb., 1970.

Described are the equipment and technics used and the results of one year's experience with "a portable, relatively inexpensive, simple-to-operate fetal monitor" from which continuous fetal heart rate and uterine contraction records can be obtained during labor. "In a monitored group of 245 high-risk patients, there was a decrease of about 75% in primary Cesarean-Section rate for clinically diagnosed fetal distress, and the incidence of depressed babies was lower than expected."

748. Paul, Richard H., and Hon, Edward H.: "Endoscopic Examination of Fetal Scalp and Fetal Electrocardiography. Value of Lateral Position," *Obstetrics and Gynecology*, 35:111-113, Jan., 1970.

Described are improvements made in the endoscopic technique of fetal evaluation.

749. Paul, W.M.; Gare, D.J.; and Whetham, J.C.: "Assessment of Fetal Scalp Sampling in Labor," *American Journal of Obstetrics and Gynecology*, 99:745-753, Nov. 15, 1967.

In order to assess this technique, the described method was used 249 times during the labors of 146 patients, 56 of which "showed clinical signs of fetal distress." "Mean values for pH, CO_2, and base deficit did not differ in the 'distressed' and 'nondistressed' group. Severe fetal acidosis (ph 7.10) was encountered infrequently. Actual pH of the fetus in the range observed in these cases was not related to the immediate state of the newborn. The presence of a normal pH in the presence of suspected fetal distress may allow a more conservative approach to avoid surgical intervention in these situations. No precise measure of acid-base status is suggested as a firm indication for intervention in suspected fetal distress." "Discussion" follows the text.

750. Peck, James E.: "The Use of Bottle-Feeding during Infant Hearing Testing," *Journal of Speech and Hearing Disorders*, 35:364-368, Nov., 1970.

Such a procedure in which the mother feeds the infant in a test booth while sound signals are presented is described. Two cases are presented to illustrate the "values and limitations" of the technique and advantages are listed.

751. Peiper, Albrecht. *Cerebral Function in Infancy and Childhood.* Translation of the 3rd rev. German ed. by Benedict Nagler and Hilde Nagler. New York: Consultants Bureau, 1963. 683 pp. (The International Behavioral Science Series.)

Divided into 15 sections, this book comprehensively described cerebral function in the newborn and young child. Two sections are concerned with sensory function, four deal with motor and reflexsive activity, and other sections provide information on the neurological aspects of respiration, food intake, sleep and conditioned reflexes. In Chapters 12-14 "Neurological Characteristics of Certain Developmental Phases," evaluational aspects of cerebral function, and environmental influences are discussed respectively. Each section is followed by a summary and a bibliography. A list of the works by the author and his associates follow the text.

752. Pendleton, Thelma Brown, and Simonson, Judi: "Training Children with Cerebral Palsy," *American Journal of Nursing*, 64:126-129, May, 1964.

The authors describe methods used at the Piper's Portal Schools, United Cerebral Palsy of Chicago to train cerebral palsy children in self-help. Bladder training, bowel training, drinking from straws, chewing, feeding, and dressing are each considered.

753. "Peripheral Phenol Injections Reduce Spasticity," *Journal of the American Medical Association*, 193:12:31-32, Sept. 20, 1965.

The encouraging results of preliminary clinical trials of this method by three Stanford University Medical Center physicians with patients having spasticity from various causes are reported. Explanations regarding the reduction in spasticity when 3% phenol in solution is injected peripherally and problems are described. This "nerve injection technique appears to be a potential rehabilitative method which avoids permanent nerve function destruction."

754. Perlstein, M.A.: "Cerebral Palsy; Incidence, Etiology, Pathogenesis," *Archives of Pediatrics*, 79:289-298, Aug., 1962.

Cerebral palsy is defined, and the terms "incidence" and "prevalence" are differentiated with pertinent studies reviewed. The etiology of cerebral palsy is considered in detail with prenatal, natal, and postnatal factors described. Conclusions are listed.

755. Perlstein, M.A., and Hood, Philip N.: "Etiology of Postneonatally Acquired Cerebral Palsy," *Journal of the American Medical Association*, 188:850-854, June 8, 1964.

"Postneonatally acquired cerebral palsy" is defined as being that which occurs after the first two weeks of life. Four thousand five hundred and forty-six cerebral palsied patients of Dr. Perlstein were retrospectively studied. Approximately 14% of these had postneonatally acquired cerebral palsy. "Sixty-five per cent was acquired before the age of two years and 95% before eight years." The results of analyzing these cases with regard to type of cerebral palsy and etiology are reported. Separately discussed are five etiological categories: encephalopathy, skull trauma, meningitis, vascular causes, and other causes. Facts relating to sex ratio, race, and age of acquisition are also presented.

756. Perlstein, Meyer A., and Attala, Ramzy: "Neurologic Sequeale of Plumbism in Children," *Clinical Pediatrics*, 5:292-298, May, 1966.

Reported are the results of a survey taken during a 10-year period of the neurologic sequelae of lead poisoning in 425 children in the Chicago area. Sixty-one per cent of the patients recovered completely from the lead poisoning and 39% had some form of neurologic manifestation remaining. The sequelae are presented and discussed in four categories: 1) mental retardation, which occurred "in 22 per cent of the total series"; 2) recurrent seizures which occurred in "20 per cent of the patients"; 3) cerebral palsy, which occurred in 2 per cent of the patients; and 4) optic atrophy, which occurred in 1 per cent of the patients. The mode of onset of the symptoms was "divided into six clinical types, three with neurologic symptoms, and three without." The incidence of the sequelae was then classified by the mode of onset. Three cases are reported.

757. Phelps, Winthrop M.: "The Cerebral Palsies," *Clinical Orthopaedics and Related Research*, 44:83-88, Jan.-Feb., 1966.

The historical development of treatment methods, terminology, etc., is briefly traced. Current pathogenic and treatment concepts, including discussions on surgery and bracing, are considered.

758. Phelps, Winthrop M.: "Complications of Orthopaedic Surgery in the Treatment of Cerebral Palsy," *Clinical Orthopaedics and Related Research*, 53:39-46, July-Aug., 1967.

The orthopaedic characteristics of the various types of cerebral palsy are described and related to treatment. The 'indications and contraindications for surgery' and complications occurring in the various joint procedures are considered. Also discussed are the complications and difficulties occurring in procedures to correct knee, ankle, and foot deformities and disabilities and surgery of the hand and arm in cerebral palsied patients. Because many deformities are known to reoccur with growth, it is felt that the best surgical results are usually obtained after the growth period of life. Bracing and exercises to control the deformities should be used until growth has ended.

759. "Phenobarbital Halts Rise in Bilirubin," *Journal of the American Medical Association*, 209:855, Aug. 11, 1969.

Presented briefly are the results of studies conducted at McGill University by Leo Stern, M.D. The administration of phenobarbital late in pregnancy was found to be of aid in preventing neonatal jaundice, and its administration in neonates was found to reduce elevated serum bilirubin levels. The doctor suggests its usage in cases of "'Coomb's positive' infants with disorders such as erythroblastosis and ABO incompatibility, badly bruised infants with excessive red cell breakdown, infants of diabetic mothers, and infants in perinatal distress."

760. Phibbs, R.H.; Harvin, D.; Jones, G.; Talbot, C.; Cohen, M.; Crowther, D.; and Tooley, W.H.: "Development of Children Who Had Received Intra-Uterine Transfusions," *Pediatrics*, 47:689-697, Apr., 1971.

The growth and development of 24 children between the ages of 1 - 5 years, who had received intra-uterine transfusions, were studied. Neonatal management methods and follow-up examination methods are described. Results are presented in a table and in extensive appendices. Features reported include neonatal course, physical growth, general health, very brief neurological findings, developmental and intelligence test results, and audiologic, speech, and language test results. Twenty-one of the children were considered to be normal. One child had spastic paraplegia and died at 7 months of age, one child had a "hearing loss" and one had a "speech handicap." Results are discussed with respect to the high risk of CNS damage in this group of children. It is tentatively concluded "that, when IUT is used in appropriately selected fetuses and combined with aggressive therapy during the neonatal period, most survivors will be neurologically intact."

761. Philips, Champe: "Devices Useful for Children," *Journal of the American Physical Therapy Association*, 42:408-409, June, 1962.

Four "commercially made products" have been found useful in treating cerebral palsied infants and children. Their use is described and pictured. The devices are a leg rest, a sleeve ironing board, a waste paper basket, and a garbage can dolly.

762. Phillips, Louise. *Staff Training in a Rural Area*. Austin, Texas: University of Texas, Program for Staff Training of Exemplary Early Childhood Centers for Handicapped Children, [1971]. 15 pp. (Staff Training Prototype Series Vol. II, No. 2.)

This material is designed to be used in the accompaniment of transparencies. Described is the staff training program of a model preschool for handicapped children in Magnolia, Arkansas. The four areas of training considered are the training of paraprofessionals, the training of teachers, the training of supportive personnel, and general training of the total staff.

763. Pinkus, Geraldine S.; and Pinkus, Jack L.: "Fluorometric Determination of Total Estrogens in Amniotic Fluid of Normal and Complicated Pregnancies," *Obstetrics and Gynecology*, 36:528-535, Oct., 1970.

Total estrogen concentrations were determined in 28 amniotic fluid samples from nine normal pregnancies and from twelve complicated pregnancies, including eleven cases of Rh isoimmunization. The procedure is described and involved "ammonium sulfate precipitation of the conjugated and free estrogens" and the fluorometric assay of solutions of total estrogens. The total estrogens were usually lower in the complications group with the lowest values found in cases of fetal death, but "normal and abnormal groups were not completely differentiated." It is suggested that the method may be useful in assessing fetal well-being.

764. Platt, B.S., and Stewart, R.J.C.: "Effects of Protein-Calorie Deficiency on Dogs. I. Reproduction, Growth, and Behaviour," *Developmental Medicine and Child Neurology*, 10:3-24, Feb., 1968.

Research on the effects of protein-calorie diet deficiency was conducted on dogs in an effort to aid in the understanding and treatment of this condition in man. Slow body growth and changes in bones, brains, and behavior were seen in dogs fed from weaning on a low-protein diet. The bitches produced smaller and fewer pups than did the well nourished controls. When the pups of the malnourished mothers were fed low-protein diets, they were seen to have more abnormalities than did the malnourished pups of normal mothers. These abnormal characteristics are described as are the results of an effort to abate them with the introduction of high protein diets. Implications for man are discussed.

765. Pless, Ivan Barry, and Satterwhite, Betty: "Health Education Literature for Parents of Handicapped Children," *American Journal of Diseases of Children*, 122:206-211, Sept., 1[illegible]71.

The importance of educating the parents of handicapped children, the role of the pediatrician in this education, and the problems that often occur are discussed. The benefit of written materials as a form of communication in such cases is stated. Presented on two full pages is a list of currently available "Health Education Literature for Parents of Handicapped Children." The materials are categorized according to disability with title, author, person for whom the item is intended, and the source of the item given. Addresses of sources follow the text of the article. In a separate table, again listed according to disability, are examples of biographical literature.

766. Plum, P.: "Aetiology of Athetosis with Special Reference to Neonatal Asphyxia, Idiopathic Icterus, and ABO-Incompatibility," *Archives of Disease in Childhood*, 40:376-384, Aug., 1965.

A study of 173 patients with congenital athetosis was conducted to determine the etiological relationships between the condition and the factors of "(1) neonatal asphyxia without icterus, (2) neonatal icterus of unknown origin, (3) neonatal icterus due to ABO- and Rh-sensitization, and (4) prematurity."

Forty-nine per cent of the patients were first seen before age one. Neonatal history and examination are given to the children and their mothers as described, and terms are defined. Results and comparisons are presented in detail. Neonatal icterus or neonatal asphyxia, or both of these, had been present in all but five cases. The incidence of ABO and Rh- incompatibility was "significantly greater than in the general population." Thirty-five per cent of the cases were born prematurely. Numerous differences among the etiological groups with regard to clinical features and neurological signs were noted.

767. Polacek, K.; Zwinger, A.; and Vedra, B.: "Spectrophotometric Examination of the Amniotic Fluid in Rh-Iso-Immunization: A Simple Method for the Evaluation of Results," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 78:248-250, Mar., 1971.

Presented and described is "a simple diagram for evaluating the reliability of spectrophotometric examination of the amniotic fluid." "In a series of 40 isoimmunized women the condition at birth of all infants requiring active treatment during pregnancy was correctly predicted, but there were three false positive results." A definition is given for infants who were considered to require "active treatment."

768. Poland, Ronald L., and Odell, Gerald B.: "Physiologic Jaundice: The Enterohepatic Circulation of Bilirubin," *New England Journal of Medicine*, 284:1-6, Jan. 7, 1971.

Nine full-term cesarean section delivered neonates were fed formula containing agar as described, while 10 control newborns were fed the same formula without agar added. "Agar stabilizes bilirubin in aqueous solution and prevents its bacterial conversion." The infants and the detailed methods used are described as are the results. "No rise in the serum bilirubin concentration occurred after the 13th hour of life in the agar-fed infants. More bilirubin was excreted in the feces within the first five days in infants fed formula with agar, and these infants also lost less weight than the controls. By the sixth day, total fecal bilirubin excretion from birth was similar in both groups." Implications are discussed, including the role of agar-feeding in the reduction of hyperbilirubinemia.

769. Pollock, G.A.: "Surgical Treatment of Cerebral Palsy," *Journal of Bone and Joint Surgery*, 44-B:68-81, Feb., 1962.

Factors that tend "to increase the chances of surgical success" in cerebral palsy are listed. Patient selection is discussed. Deformities of the upper and lower extremities and of the hip, that occur in cerebral palsy, are separately considered along with appropriate surgical procedures and expected results.

770. Porto, Sergio O.; Pildes, Rosita S.; and Goodman, Harold: "Studies on the Effect of Phototherapy on Neonatal Hyperbilirubinemia Among Low-Birth-Weight Infants. I. Skin Color," *Journal of Pediatrics*, 75:1045-1047, Dec., 1969. (Series: For II see #771.)

Twenty-three Caucasian and 29 Negro neonates, having birth weights of less than 2,500 grams, were randomly assigned to either an experimental or a control group. The experimental group was exposed to blue florescent light within 28 hours of birth. Phototherapy produced similar results in both the Caucasian and Negro infants, indicating "that skin pigmentation does not interfere with the photo-oxidation of bilirubin in the newborn infant."

771. Porto, Sergio O.; Pildes, Rosita S.; and Goodman, Harold: "Studies on the Effect of Phototherapy of Neonatal Hyperbilirubinemia Among Low-Birth-Weight Infants. II. Protein Binding Capacity," *Journal of Pediatrics*, 75:1048-1050, Dec., 1969. (Series: For I see #770)

The results of a described, controlled study provide further evidence that the "products of phototherapy are probably nontoxic and harmless."

772. Pratt, L.E.A.: "Examination of the Child Handicapped By Cerebral Palsy," *Physiotherapy*, 49:116-121, Apr. 10, 1963.

The author divides such an examination by a physiotherapist into two parts: "the passive examination during which the child is not required to take any part, and the active examination when he is given the opportunity to show what he can do." Five areas to be examined are included in the "passive" portion of the examination and three in the "active." These eight areas are individually described. The differences between examining and planning for the infant and the older child are noted, and three cases are reviewed "in order to illustrate the range of difficulties which may occur."

773. Prechtl, H.F.R.: "Neurological Sequelae of Prenatal and Perinatal Complications," *British Medical Journal*, 4:763-767, Dec. 30, 1967.

Relationships between obstetric complications and neurological examination results were considered. One thousand three hundred seventy-eight full-term newborns were neurologically examined, using the author's standardized technique, and data on maternal factors, pregnancy, delivery, etc. were analyzed. Forty-two obstetric variables for each case were considered, and a count was made of all variables in each case that deviated from "optimal conditions." There was a tendency for non-optimal conditions to occur together. The cases were divided into low, middle, and high risk groups "on the basis of obstetric complications" and again into three groups on the basis of neurological examination scores. It was concluded "that there is a high association betweeen obstetric complications as measured by the obstetric scores - and the occurrence of neonatal neurological abnormalities." Implications are considered.

774. Prechtl, Heinz F.R.: "Hazards of Oversimplification," *Developmental Medicine and Child Neurology*, 12:522-524, Aug., 1970.

The neurological examination of infants and children is different from that of adults because developmental aspects must always be considered. Six principles are listed which must be adhered to in the examination "if the optimal strategy

775. Prechtl, Heinz F.R.: "Polygraphic Studies of the Full-Term Newborn. II. Computer Analysis of Recorded Data," in *Studies in Infancy*, based on a study group held at Oxford, September, 1966; edited by Ronald MacKeith and Martin Bax. London: Spastics International Medical Publications in association with Heinemann Medical Books, 1968. pp. 22-40. (Clinics in Developmental Medicine, No. 27.) (Series: For I see #776.)

The methods used and results obtained when automatic data processing techniques were employed to describe polygraphic data from the full-term newborn are presented. Results regarding respiration, heart rate, eye movements, the electroencephalogram, and the analysis of state cycles are included. "In our experience computer analysis of long polygraphic records in newborn infants may supply new and significant information on nervous regulation, in addition to clinical neurological examinations. This technique can also be used as a powerful tool in the analysis of response patterns of normal and abnormal infants to sensory stimulation."

776. Prechtl, Heinz F.R.; Akiyama, Yoshio; Zinkin, Pamela; and Grant, Donald Kerr: "Polygraphic Studies of the Full-Term Newborn. I. Technical Aspects and Qualitative Analysis," in *Studies in Infancy*, based on a study group held at Oxford, September, 1966; edited by Ronald MacKeith and Martin Bax. London: Spastics International Medical Publications in association with Heinemann Medical Books, 1968. pp. 1-21. (Clinics in Developmental Medicine, No. 27.) (Series: For II see #775.)

"The concept of state in the analysis of nervous function and behaviour in young infants" is discussed. Presented are the methods used and the preliminary results obtained in the polygraphic recording of the respiration, EKG, EEG, EMG, and eye movements of the full-term newborn infant. Numerous polygraphic recordings of the various features studied are reproduced, and the value of polygraphy is mentioned.

777. Prechtl, H.F.R.; Theorell, K.; Gramsbergen, A.; and Lind, J.: "A Statistical Analysis of Cry Patterns in Normal and Abnormal Newborn Infants," *Developmental Medicine and Child Neurology*, 11:142-152, April, 1969.

Crying patterns were statistically studied in 21 newborn infants from birth to age 9 days. After daily neurological examinations, the infants were divided tinto three groups: 1) normal; 2) transiently abnormal; and, 3) consistently abnormal. Results show that the normal babies displayed a cry pattern characteristic of the individual, and the cry duration tended to become shorter and less variable during the 9 days. But the infants in groups 2 and 3 showed a large variation in crying patterns, especially in the cry duration. It is suggested that such data may correlate with other developmental and neurological findings.

778. Prechtl, H.F.; Weinmann, H.; and, Akiyama, Y.: "Organization of Physiological Parameters in Normal and Neurologically Abnormal Infants," *Neuropadiatrie*, 1:101-129, July, 1969.

The concept of "state" in infants is explained and a "state" rating scale is presented. The process and results of using polygraphic techniques to record a number of physiological parameters in infants is described. The following variables were recorded with methods described: "respiration, EKG, heart rate (cardiotachogram), electrooculogram (EOG), EEG, EMG." The interrelationships found among these parameters are presented and "a series of mathematical models are suggested to help in the analysis of the statistical properties of the separate parameters as well as of their interrelationships." "A number of preliminary results obtained by these methods illustrate examples of normal and abnormal patterns." "The practical implications of polygraphic recordings and their data processing" for normal and abnormal infants are considered.

779. "Prenatal Antibody Screening and Use of Rho (D) Immune Globulin (Human)," *ACOG Technical Bulletin*, No. 13, June, 1970.

The purposes, methods, and timing of prenatal antibody screening are briefly mentioned. The criteria needed to be met by both mother and baby before Rho (D) immune globulin (human) is administered to the postpartum patient are listed, and the procedure of administration is described. Also listed are the "contraindications" and "cautions" to be used in administration. A copy of "the suggested authorization and procedure form" follows.

780. "Prevention of Rh-Haemolytic Disease: Results of the Clinical Trial; A Combined Study from Centres in England and Baltimore," *British Medical Journal*, 2:907-914, Oct. 15, 1966.

This work was done by Dr. C. A. Clarke and his colleagues at five medical centers. One hundred fifty-six Rh-negative primapara, who were found to be at risk of Rh immunization because of the number of fetal cells that had been "detected in their blood after delivery of an Rh-positive baby," were included. The women were evenly divided into experimental and control groups. The former were given "an intramuscular injection of 5 ml. of gamma-globulin containing a very high titre of incomplete anti-D" shortly after delivery. Six months later the sera of both groups were tested for antibodies. "No certain case of Rh immunization" was seen in the experimental group, but there were 19 such cases in the controls. In 18 treated women (six from this study), who had been delivered of Rh-positive ABO compatible babies in their second pregnancy, no antibodies were detected. The protective mechanism of anti-D is discussed, and further work by the group in this area is outlined.

781. Price, H.V.: "Hypoglycaemia Complicating Haemolytic Disease of the Newborn," *Archives of Disease in Childhood*, 44:248-251, Apr., 1969.

Six cases of newborn infants with hypoglycemia and hemolytic disease are reported. "It is suggested that cases of erythroblastosis fetalis are at risk in respect to hypoglycaemia. To detect the infants requiring treatment, Dextrostix testing every 4 of 6 hours for the first day of life seems indicated."

782. Price, Lloyd L.: "Evoked Response Audiometry: Some Consideration," *Journal of Speech and Hearing Disorders*, 34:137-141, May, 1968.

Studies concerning this method of determining auditory thresholds are reviewed, and the method is critically evaluated. Problems with its usage and its validity are pointed out and discussed, including its use with the "very young and/or multiply involved" child. Problems of this technique which need to be solved to improve its clinical usefulness are listed.

783. Price, Lloyd L., and Goldstein, Robert: "Average Evoked Responses for Measuring Auditory Sensitivity in Children," *Journal of Speech and Hearing Disorders*, 31:248-256, Aug., 1966.

The methods and instruments used to obtain hearing thresholds in 70 children ages 2 months through 13 years are described. "On the basis of audiologic, speech, psychologic, social work, and medical evaluation, the children were divided into four groups: (a) normal, (b) auditory sensitivity impairment only, (c) impairment of auditory sensitivity plus other disorders, and (d) disorders other than impairment of auditory sensitivity. In groups (a) and (b) there was, in general, good agreement between the results of behavioral audiometry and results of EEA with the averaged evoked response. In groups (c) and (d) however, approximately half of the children showed lower thresholds for the averaged evoked response than behavioral tests indicated." The method was felt to be very valuable in group (d) in making appropriate recommendations for education and therapy.

784. Proctor, I.K., and Dempster, Francoise: "An Evaluation of a Method of Reinforced Response Audiometry for Pre-School Children," *International Audiometry*, 9:293-303, Aug., 1970.

Reported here are the results of a study in which "automatic food reinforcement audiometry" was used to test the hearing of 88 normal children of preschool age, 99 clinical cases under age five, and 30 clinical cases over age five. The equipment used, its mode of operation, and the testing procedures are explained. "The system of rewarding successful responses proved to give satisfactory motivation in most cases and permitted the evaluation of a series of difficult clinical cases that had been resistant to testing by conventional audiometry."

785. Provence, Sally. *Guide for the Care of Infants in Groups*. New York: Child Welfare League of America, 1967. 104 pp.

The author's purpose in this book is to provide a guide for those working in the area of group infant care in order that children under the age of two who are living in a group care situation may be well cared for. The first six chapters deal with various features of infantile development - emotional, motor, self-identity, play, speech, etc. In subsequent chapters specific child care practices are discussed. Included are chapters of feeding, sleep, bathing and dressing, and toilet training. Program planning is also the topic of one chapter.

786. Provence, Sally, and Lipton, Rose C. *Infants in Institutions; A Comparison of Their Development with Family-Reared Infants during the First Year of Life.* Preface by Milton J.E. Senn. New York: International Universities Press, 1962. 191 pp.

Described in four parts is a research study in which the first year's development of institutionalized infants was compared with this development in family-reared infants. In Part I the methodology, including the tests used, is described. Part II contains a detailed portrayal of several features in the daily experience of the institutionalized infants - feeding, bathing, motor activities, etc. In Part III the two groups are compared with respect to numerous developmental and behavioral characteristics. Two infants from each group are compared in detail. Part IV includes a follow-up report on 14 of the institutionalized infants who were later placed in foster homes and a chapter on implications and applications of the results. The appendices contain further information on the testing materials and testing results, and a bibliography follows.

787. Queenan, John T.: "Amniocentesis and Transamniotic Fetal Transfusion for Rh Disease," for the Symposium on Amniotic Fluid, edited by Fritz Fuchs. *Clinical Obstetrics and Gynecology*, 9:491-507, June, 1966.

The dangers of an Rh-immunized pregnancy with respect to perinatal mortality, prematurity, hyaline membrane disease, etc., are described. The techniques and the values of amniocentesis and of intrauterine transfusions in preventing the above conditions are presented.

788. Queenan, John T., and Adams, Daniel W.: "Amniocentesis for Prenatal Diagnosis of Erythroblastosis Fetalis," *Obstetrics and Gynecology*, 25:302-307, Mar., 1965.

The procedure of amniocentesis and its employment on 44 immunized obstetric patients are described.

789. Queenan, John T., and Goetschel, Emmanuel: "Amniotic Fluid Analysis for Erythroblastosis Fetalis," *Obstetrics and Gynecology*, 32:120-133, July, 1968.

Three methods of amniotic fluid analysis were evaluated by analyzing 360 amniotic fluid samples from 140 Rh-negative sensitized pregnant women. The methods were "(1) deviation in optical density at 450 mμ; (2) corrected-bilirubin method; and (3) bilirubin-protein ratio." The first "two methods appeared superior to the third in assessing the condition of the fetus." The advantages of each method are discussed.

790. Rabe, Edward F.: "The Hypotonic Infant; A Review," *Journal of Pediatrics*, 64: 422-440, Mar., 1964.

Reviewed are "the present clinical, physiologic, and pathologic concepts concerning the hypotonic infant from birth to 24 months of age." Hypotonia is defined, and factors involved in normal muscle tone are explained as background information. An etiological classification of hypotonia is then presented with the various diseases under each item in the scheme discussed. Hypotonia is seen as being due to the following causes: diseases of the central nervous system, diseases of the spinal cord, diseases of the spinal roots or peripheral nerves, abnormalities of the myoneural junction, and diseases of the muscle. Muscle biopsy, electromyography, determination of the nerve conduction time, serum enzyme determinations, measurements of urinary creatine and creatinine, and developmental assessment are individually discussed as diagnostic aids in etiology.

791. Rabor, Iole F.; Oh, William; Wu, Paul Y.K.; Metcoff, Jack; Vaughn, Mary A.; and Gabier, Marjorie: "The Effects of Early and Late Feeding of Intra-Uterine Fetally Malnourished (IUM) Infants," *Pediatrics*, 42:261-269, Aug., 1968.

Twenty-eight neonates who met the listed criteria of being IUM infants were studied. Thirteen of these infants weighed over 2,040 gm. at birth, and 15 weighed less than 2,040 gm at birth. The 28 infants were placed in either an early-fed group (4 hrs. after birth) or a late-fed group (24 hrs. after birth) depending "upon the age when the infant was incorporated into the study group." "None of the infants whose birth weight exceeded 2,040 gm. developed clinical complications." "In infants weighing less than 2,040 gm, three of nine late-fed group IUM infants developed symptomatic hypoglycemia," but none of the six early fed infants in this low birth weight group did. Other findings are reported to support the early feeding method in IUM infants who weighed less than 2,040 gm. at birth. Such early feeding "may enhance glucose homeostasis in early neonatal life and prevent neonatal symptomatic hypoglycemia."

792. Rafael, Berta. *Staff Training Model in an Agency Setting*. Austin, Texas: University of Texas, Program for Staff Training of Exemplary Early Childhood Centers for Handicapped Children, [1971]. 19 pp. (Staff Training Prototype Series Vol. II, No. 6.)

After an "Introduction," the training program of the early education demonstration center of United Cerebral Palsy of New York City is explained. This explanatory material was designed to be accompanied by slides. The three parts of the training program are separately described. These are "(1) teacher training," in which the staff specialists act as an interdisciplinary team "to provide in-service training for the teachers," "(2) parent training which involves reciprocal sharing of information between parents and the staff, and (3) student training." Graphic models of these three parts of the training program are included.

793. Räihä, C.E.: "Prevention of Prematurity," in *Advances in Pediatrics*, Vol. XV. Edited by S. Z. Levine. Chicago: Year Book Medical Publishers, 1968. pp. 137-190.

The first portion of this paper is essentially a review of the literature concerning such topics as the survival of premature infants, the etiological factors in prematurity, the circulatory function during the pregnancy, and the prevention of prematurity. The author then describes in detail a series of studies conducted in Finland by himself and others in which a relationship was found between low maternal heart volume and premature birth. On the basis of results preventative measures were initiated in prenatal clinics in Helsinki. Premature births were significantly reduced when measurement was taken of the heart volume of pregnant women, and those with a small volume were advised to rest. Such measurement in all pregnant women and facilitation of rest in high-risk cases is recommended.

794. Raivio, Kari O.: "Neonatal Hypoglycemia. II. A Clinical Study of 44 Idiopathic Cases with Special Reference to Corticosteroid Treatment," *Acta Paediatrica Scandinavica*, 57:540-546, Nov., 1968. (Series: For I see #795.)

Obstetrical and neonatal information, features of the hypoglycemia, associated disorders found, treatment, and preliminary prognosis are presented for these 44 cases. Administration of hydrocortisone was shown to significantly shorten the duration of hypoglycemia. Four infants were diagnosed before six months of age as having "mental retardation with spasticity and infantile spasms." One of these died. All others appeared to be normal after four to twenty-six months of being observed. Suggestions for treatment are made.

795. Raivio, Kari O., and Hallman, Niilo: "Neonatal Hypoglycemia. I. Occurrence of Hypoglycemia in Patients with Various Neonatal Disorders," *Acta Paediatrics Scandinavica*, 57:517-521, Nov., 1968. (Series: For II see #794.)

In 1965 a program was begun at the Children's Hospital of the University of Helsinki to investigate "problems associated with neonatal hypoglycemia." Results of the first part of this study dealing with the determination of conditions predisposing to or associated with hypoglycemia are presented in this article. Nine hundred sixty-four newborns were screened for hypoglycemia. Methods of screening, treatment, and results are described. Three groups of infants were discerned to be predisposed to hypoglycemia: "dysmature" infants, infants of diabetic mothers, and critically ill infants. Methods employed by the authors for early detection are presented in the "Discussion" section.

796. Rambar, Alwin C.: "Effect of Maternal Virus Infections on the Fetus. Part I," *Illinois Medical Journal*, 136:261-267, Sept., 1969. (Series: For II see #797.)

This review of current knowledge deals primarily with the response of the fetus to viral infection originating in the mother. The various possible means by which the fetus can be infected and the general susceptibility of the immature to viral infections are discussed. Animal studies in the area are briefly reviewed. Specific viral infections and their relationships to fetal abnormalities are then considered. The individual viruses of concern in Part I include rubella, varicella-zoster infections, herpes simplex, smallpox, and vaccinia virus infection.

797. Rambar, Alwin C.: "Effect of Maternal Virus Infections on the Fetus, Part II," *Illinois Medical Journal*, 136:599-605, Nov., 1969. (Series: For I see #796.)

In continuation of Part I, the individual viruses and their relationships to fetal abnormalities that are considered in Part II include mumps, measles, influenza, poliomyelitis, coxsackie viruses, echo virus, hepatitis virus, western equine encephalitis, infectious mononucleosis, and cytomegalovirus. In discussing preventive measures, Dr. Rambar stresses that the use of live virus vaccines should be avoided during pregnancy, and pregnancy should be avoided for at least two months after inoculation with rubella vaccine. In the only other proven viral teratogen, the cytomegaloviruses, there is presently no treatment of value for use in preventing the possible serious effects on the fetus resulting from maternal infection.

798. Ramboer, Carlos; Thompson, R.P.H.; and, Williams, Roger: "Controlled Trials of Phenobarbitone Therapy in Neonatal Jaundice," *Lancet*, 1:966-968, May 10, 1969.

Three series of controlled trials were conducted "to determine the effect of phenobarbitone on neonatal hyperbilirubinaemia." In the first series when pregnant women were treated, as described, from the 32nd week of pregnancy until the initiation of labor, the administration of phenobarbitone was "effective." In the second and third series when infants of normal birth weight and infants of low birth weight were given phenobarbitone, as described, treatment "was less effective." Results are presented and discussed.

799. Rapin, Isabelle, and Graziani, Leonard J.: "Auditory-Evoked Responses in Normal, Brain-Damaged, and Deaf Infants," *Neurology*, 17:881-894, Sept., 1967.

Eighteen control infants and 43 infants considered to be brain-damaged and/or deaf were tested during sleep regarding auditory-evoked responses. Visual-evoked responses were also recorded in some cases. The age range was from one day to three years. Procedures are described in detail, and results are reported for the 18 controls, the 21 brain-damaged infants, the five deaf infants, and the 17 infants with congenital rubella. "By this method, residual hearing was detected and measured in eight infants with brain damage and in 11 infants with rubella, all of whom gave inconsistent or no behavioral response to sound and all of whom were afflicted with additional handicaps such as psychomotor retardation and visual loss."

800. Rawlings, Grace; Reynolds, E.O.R.; Stewart, Ann; and, Strang, L.B.: "Changing Prognosis for Infants of Very Low Birth Weight," *Lancet*, 1:516-519, Mar. 13, 1971.

Sixty-eight of 72 surviving low birth weight infants (1500 gm. or less birth weight) who were born between 1966 and 1969 and were "cared for in University College Hospital (London) since we introduced methods of intensive care designed to prevent brain damage" were thoroughly followed as described. Neonatal management techniques are explained. Results are presented for groups of the children concerning developmental quotients, intelligence quotients, physical handicaps, and assessment of parents. "At a mean conceptual age of 2 years 3 months...59 (86.7%) appear to be normal children, five (7.4%) are abnormal, and four (5.9%) are classified as 'doubtful.' These results suggest that the prognosis for infants of very low birth weight has improved following the introduction of modern methods of care." Implications are considered.

801. Rembolt, R.R.: "Emotional Factors in Residential Care of Handicapped Children," *Clinical Orthopaedics and Related Research*, 47:65-71, July-Aug., 1966.

Comment is made on the lack of literature on "residential type long-term management" of the cerebral palsied child. The differences between this type of residential setting and the usual hospital situation are considered. Factors that have been found to affect the psychological reaction of children to hospitalization are presented, and other factors are listed that are in need of research to determine their influence on the psychological status of the hospitalized child. The University Hospital School in Iowa City, Iowa is described as a residential center in which physically handicapped children live. The children admitted are described with respect to intelligence, age, medical diagnosis, duration of residence, and family visitation frequency. Case summaries are presented in the six cases which had displayed serious psychological disturbance. The factors applied in this residential center which contribute to the prevention of psychological problems are listed.

802. Rembolt, R.R.: "Programming for Infants with Cerebral Dysfunction: An Overview," in *Interdisciplinary Programming for Infants with Known or Suspected Cerebral Dysfunction*. The report of an interdisciplinary conference held at Santa Monica, California, March 16-18, 1970. Edited by Gene Hensley and Virginia Patterson. Boulder, Colorado: Western Interstate Commission for Higher Education, 1970.

The term "program" is defined and two major assumptions which must be a part of every program plan are presented. The interdisciplinary approach is emphasized. The Pine School Project at the University of Iowa is described as an example of a comprehensive program to attempt to improve the intellectual functioning of culturally deprived preschool children. Methods used and results obtained from a survey conducted by the author to determine the degree of participation of members of the American Academy for Cerebral Palsy in "Early Care" services during 1969 are reported in graphs and tables. A discussion is conducted on recent advances made in the area of infant cerebral dysfunction.

803. Rendle-Short, John: "The Care of the Child with a Long-Term Handicap," *Medical Journal of Australia*, 56:604-606, Sept. 20, 1969.

Handicapped children are discussed in relation to diagnosis, prevention, and management with emphasis on the latter. Four types of management are explained: "curative treatment," "symptomatic treatment," "palliative treatment," and "supportive treatment." It is in this last area that the doctor of a long-term handicapped child "can probably do the most good." This view is explained. Also considered are the attitudes of others - parents, community, and doctor - toward the handicapped child.

804. Reye, Corrie: "A Neuro-Developmental Approach to the Treatment of Cerebral Palsy; A Preliminary Report," *Australian Paediatric Journal*, 4:73-77, Mar., 1968.

The principles and procedures of a neurodevelopmental approach used over an 18-month period at The Spastic Centre of New South Wales to treat young cerebral palsied children are presented. Seven children, 12 months of age or less, and 50 children, ages 1 to 5 years, were so treated with results and the 7 case histories of the younger children briefly described. The value of such treatment with the very young cerebral palsied child is emphasized.

805. Reynell, J.K.: "The Significance of Developmental Information for the Assessment and Management of Handicapped Children," *Physiotherapy*, 57:163-168, April, 1971.

Suggestions for aiding "early learning processes in children with different types of handicap" are presented. The mother's role during physiotherapy is discussed, and a case is reported to "illustrate some of the points made on the use of developmental information as a guide to planning treatment." Also briefly considered is how developmental information can help the physiotherapist.

806. Reynolds, John W.: "Assessment of Fetal Health by Analysis of Maternal Steroids," *Journal of Pediatrics*, 76:464-469, Mar., 1970.

The process whereby the biosynthesis of estriol takes place during pregnancy is illustrated and described, and the various indications of fetal health given by the level of maternal excretion of estriol are discussed.

807. Richards, F.M.; Richards, I.D.G.; and Roberts, C.J.: "The Influence of Low Apgar Rating on Infant Mortality and Development," in *Studies in Infancy*, based on a study group held at Oxford, September, 1966; edited by Ronald MacKeith and Martin Bax. London: Spastics International Medical Publications in association with Heinemann Medical Books, 1968. pp. 84-88. (Clinics in Developmental Medicine No. 27.)

Described is a pilot study of the relationship between the low Apgar score at one minute after birth and the developmental level at one year. The study was conducted by the Department of Obstetrics and Gynaecology, Welsh National School of Medicine. The main finding was that although low Apgar score was associated with a very high neonatal mortality, the survivors appeared to have attained a normal developmental level at one year of age. Possible explanations for the findings are given.

808. Richards, I.D.G., and Roberts, C.J.: "The 'At Risk' Infant," *Lancet*, 2:711-713, Sept. 30, 1967.

Examined are "the principles on which the at-risk concept is based," the "detection of handicapping disorders," and "the validity of the evidence connecting at-risk categories with handicapping disorders." It is concluded that "the 'at-risk' concept is an unsound basis for the detection of handicapping disorders; there is no alternative to the clinical examination of all infants in the neonatal period, their screening for metabolic and auditory defects at the proper ages, and the careful observation of every infant's developmental progress by doctors, supported by health visitors."

809. Richards, Margaret: "The Role of a Social Worker in Counselling and Support," *Developmental Medicine and Child Neurology*, 11:786-791, Dec., 1969.

Because of the large number of people helping the handicapped child and his family, there is much overlapping of responsibility. The problems resulting from this overlap and problems encountered in the parent-social worker relationship are discussed. Several responsibilities of the social worker in working with handicapped children are listed and explained.

810. Richardson, Frederick: "Assessment Centres for Handicapped Children," *Proceedings of the Royal Society of Medicine*, 59:139-142, Feb., 1966.

The growth of such services in the United States is mentioned with the Handicapped Children's Center of John Hopkins University described. The Center's examination process and staffing arrangements are considered. Five points needed to be given consideration for the future planning of such centers in Great Britain are listed.

811. Rife, Sandra S., and Kennedy, Edgar: "A Feeding Device," *Artificial Limbs*, 13:64-68, Autumn, 1969.

This device which enables handicapped individuals to feed themselves, its components, and its use are illustrated. The physical requirements necessary for its use, the device itself, the method of its operation, its care, and the successful results of its use with cerebral palsied children are described.

812. Robbins, Peter G.; Gorbach, Arthur G., Jr.; and Reid, Duncan E.: "Neurologic Abnormalities at One Year in Infants Delivered After Late-Pregnancy Hemorrhage," *Obstetrics and Gynecology*, 29:358-361, Mar., 1967.

One hundred and three infants from the Collaborative Study "whose mothers had had significant third-trimester bleeding" were studied. Nineteen of these were stillborn or died neonatally. "Of the 84 infants followed for one year, 52 were considered normal at the one-year neurologic examination. Another 24 were classified neurologically suspicious, and eight definitely were neurologically damaged." In a group of 84 control infants, 80 were considered normal and four neurologically suspicious on the basis of the one-year neurologic exam. Relationships or lack of such revealed between outcome and the factors of maternal age, parity, cause of hemorrhage, type of delivery, degree of hemorrhage, and prematurity are presented.

813. Roberts, C.J.: "Developmental and Neurological Sequelae of the Common Complications of Pregnancy and Birth," *British Journal of Preventive and Social Medicine*, 24:33-38, Feb., 1970.

Difficulties that hamper studies in this area are discussed and previous work is reviewed. Three hundred and thirty-six infants were neurologically examined between the ages of 3 to 8 weeks and developmentally and neurologically examined between the ages of 44 to 56 weeks as described. Results from these examinations were related to the pregnancy and birth histories of the mothers of these infants, and results are reported and discussed. "The findings suggest that. The relationships between neurological status and certain complications of birth may not be direct, as has hitherto been thought, but are possibly indirect through the association between neurological status and certain complications of pregnancy." "When statistically significant associations between individual obstetric complications and subsequent neurological status can be demonstrated, the difference in incidence of handicaps among children experiencing these complications and among the general infant population is not great enough to provide an acceptably sensitive screening procedure."

814. Roberts, C.J.: "Developmental Supervision and Future Trends in Infant and Child Welfare Work," *Developmental Medicine and Child Neurology*, 6:527-529, Oct., 1964.

The value of the developmental approach as it relates to the normal, to the handicapped, and to the mentally defective child is briefly considered. Also explained in brief is a Developmental Assessment Clinic opened in 1963 to provide routine developmental examinations for all infants in a defined area.

815. Roberts, C.J.: "The Distribution of Neurological Signs in Early Infancy: A Population Study," in *Studies in Infancy*, based on a study group held at Oxford, September, 1966; edited by Ronald MacKeith and Martin Bax. London: Spastics International Medical Publications in association with Heinemann Medical Books, 1968. pp. 50-64. (Clinics in Developmental Medicine, No. 27.)

This paper is a report on the distribution of neurological signs found in a population of normal infants, examined between the third and eighth week of life.

A standardized examination procedure, consisting of six equally-weighted groups of neurological signs, was used. The results pointed to hypotonia and hypomobility as the most common abnormal symptoms found. Examination of these results and those of other studies suggest that the quality of muscle function appears to play an important role in determining not only the infantile neurological status, but also the future status of neurological function.

816. Roberts, Paguita. *Staff Training in an Inner City Setting*. Austin, Texas: University of Texas, Program for Staff Training of Exemplary Early Childhood Centers for Handicapped Children, [1971]. 13 pp. (Staff Training Prototype Series Vol. II, No. 7.)

The staff and parent training programs in the preschool department of the Mount Carmel Guild Hearing and Speech Diagnostic Center in Newark, New Jersey are described. Emphasized as part of the staff training is the gaining of knowledge about the inner-city community and the problems the child and his parents have in such an environment. A "Community Knowledge Inventory" is included in which are listed questions about Newark that a staff member at the Center should be able to answer in order to be aware of problems and to help with them. Following this Inventory, the "Eight Phase Parent Training Program" is presented.

817. Roberts, Peter; Thornfeldt, Robert; Langley, Ivan I.; and Mark, Carl, III.: "Immediate Treatment of Respiratory Distress in the Newborn," *American Journal of Obstetrics and Gynecology*, 101:293-297, June 1, 1968.

The "pathophysiology involved in distressed newborn infants" and several pertinent studies are reviewed. An immediate treatment method for respiratory distress in newborns and the results from its usage are then described. The treatment is initiated by the obstetrician in the delivery room. Techniques involved include the maintenance of temperature stability, positive pressure ventilation, and "the immediate injection of sodium bicarbonate." Laboratory work is also done immediately. One hundred twenty-nine newborns have been treated using this method; "105 survived and 24 died." The cases are analyzed with the need for further follow-up to determine morbidity noted.

818. Robertson, Ann Marie, and Crichton, John J.: "Neurological Sequelae in Children with Neonatal Respiratory Distress," *American Journal of Diseases of Children*, 117:271-275, March, 1969.

A follow-up study was conducted on 33 children who had had the respiratory distress syndrome (RDS), as defined, and who had had birth weights ranging from 1200 grams to 2040 grams. A control group of 33 children matched for selected factors but without RDS was formed. Both groups were regularly examined until 6 1/2 years of age. Methods used and results are described. Forty-two of the 66 children were found to be neurologically and intellectually normal; 14 RDS and 10 control children were not. Cerebral palsy was diagnosed in 6 RDS and 4 control children. Other handicaps found and intelligence test and electroencephalographical results are given. "Although neurological and developmental abnormalities were more frequent in infants with RDS, these differences were not statistically significant."

819. Robertson, John G.: "Examination of Amniotic Fluid in Rhesus Iso-immunization," *British Medical Journal*, 2:147-151, July 18, 1964.

Amniotic fluid was obtained from 252 patients with rhesus isoimmunization during the 33-35th weeks of gestation and analyzed. A "Diazo test" was "used to determine the presence of indirect bilirubin" and "the optical density at 450 mH above the baseline" was employed to estimate the severity of hemolytic disease in the fetus. The correct prediction rate using the two tests was 86%. The false predictions made and the subsequent management of the patients are discussed. The value of amniotic fluid examination in such cases to predict the severity of the disease and to aid in determining patient management is emphasized.

820. Robinson, R.J.: "Assessment of Gestational Age by Neurological Examination," *Archives of Disease in Childhood*," 41:437-447, Aug., 1966.

A study, in which 20 reflexes were tested for their value in predicting gestational age of newborns, is reported. Included in the study were 37 infants considered to be of "normal weight" and 25 infants who were considered "small-for-dates." Terms are explained, and the reflexes tested are listed. The responses were divided into four groups on the basis of results. The methods of illicitation, difficulties encountered, and the results from the 10 "responses whose presence or absence depended mainly on gestational age" are described in detail. Some of these 10 appeared to be more reliable predictors of gestational age than others. Other related studies are mentioned, and various "theoretical and practical" aspects are discussed.

821. Robinson, R.J. *Brain and Early Behaviour; Development in the Fetus and Infant.* Proceedings of a C.A.S.D.S. (Centre for Advanced Study in the Developmental Sciences) Study Group on "Brain Mechanisms of Early Behavioural Development" held jointly with the Ciba Foundation, London, February, 1968. New York: Academic Press, 1969. 374 pp.

This book contains the proceedings of the above Study Group. Various parameters of fetal and infantile brain development and function are explored in the papers and discussions. Bibliographies are included.

822. Robinson, S.C.: "Pregnancy Outcome Following Oral Contraceptives," *American Journal of Obstetrics and Gynecology*, 109:354-358, Feb. 1, 1971.

The application of a detailed neonatal examination procedure failed to reveal a statistically significant difference in the incidence of abnormalities when 1,250 neonates whose mothers had used oral estrogen - progestin contraceptives were compared to 1,250 newborns whose mothers had never used oral contraceptives. The mothers were matched for age and parity. Data is analyzed.

823. Roboz, Paul: "Etiology of Congenital Cerebral Palsy," *Archives of Pediatrics*, 79:233-250, July, 1962.

Results of an etiological survey of 138 cases of cerebral palsy are reported. Data were complete in all cases, and "cases of postnatal origin, Rh incompatibility and severe icterus were excluded." Previous etiological concepts are reviewed, and the role in etiology of primary factors, such as abnormal birth, asphyxia, brain hemorrhage, prematurity, abnormal pregnancy, hereditical factors, and unknown factors, is discussed with numerous studied referred to. Also considered is the "relationship between primary and secondary factors" such as sex, birth order, maternal age, pregnancy complications, multiple pregnancy, and congenital anomalies. Conclusions are presented which indicate "we are very far from revealing the role of all the factors and the involved interactions of known and unknown influences."

824. Robson, Peter: "A Method to Reduce the Variable Error in Joint Range Measurement," *Annals of Physical Medicine*, 8:262-265, Aug., 1966.

Such a method, using "a pendulum-type goniometer" is discussed. It is "an attempt to overcome the inaccuracies of the standard moving-arm instrument."

825. Robson, Peter, and MacKeith, Ronald C.: "Shufflers with Spastic Diplegic Cerebral Palsy: A Confusing Clinical Picture," *Developmental Medicine and Child Neurology*, 13:651-659, Oct., 1971.

Diagnostic problems that arise when shuffling is present in normal infants and in those infants with cerebral palsy are discussed. Nine case reports of "children in whom shuffling behaviour was complicated by an otherwise classical spastic diplegia" are presented. A review of the records of a group of spastic diplegic patients revealed that the average age of diagnosis for those who did not shuffle was 17.2 months while the average of diagnosis for those who shuffled was 32 months. This difference was "highly significant." Conclusions and implications for treatment are presented.

826. Rogers, Michael G.H.: "The Early Recognition of Handicapping Disorders in Childhood," *Developmental Medicine and Child Neurology*, 13:88-101, Feb., 1971.

Divided into two parts, this article contains a review of the theoretical aspects of the early identification of handicapping disorders and a practical scheme providing for such early recognition. In Part I, entitled "Theory," the rationale behind early recognition and its importance in the general area of child health are discussed. The aspects of developmental medicine which especially pertain to early recognition are listed. Also considered are the need for developmentally orientated pediatric training, and the similarities and the contrasts between "early detection" and "medical screening." Explained in some detail are the concepts of and differences between risk registers and the child at risk. The scheme, outlined and diagrammed in Part II, is aimed at providing "periodic developmental surveillance" for all children and "thorough supervision" for 5-10% of children considered clinically "to be at relative high risk of handicap." Emphasized is the necessity of having coordination of effort among the various branches of health service and well-trained personnel.

827. Rogers, Michael G.H.: "Risk Registers and Early Detection of Handicaps," *Developmental Medicine and Child Neurology*, 10:651-661, Oct., 1968.

Terminology associated with risk registers is explained in an attempt to alleviate confusion. Four aspects of risk registers as they have been developed in theory and as they have actually been found in practice are examined. Dr. Rogers' concludes that the concept "is an unsatisfactory basis for the early detection of handicaps." He presents an alternative plan which includes surveillance of development for all children and "special supervision of small 'high risk' groups."

828. Rooth, Gosta: "Early Detection and Prevention of Foetal Acidosis," *Lancet*, 1:290-293, Feb. 8, 1964.

Twenty-three women were studied during labor with 11 given sodium bicarbonate intravenously as described and 12 acting as controls. Maternal blood samples were taken during labor and after delivery and "samples were taken from clamped sections of the umbilical vessels." Maternal acidosis was found to usually begin in late labor when pains were of medium intensity. A high correlation was revealed between fetal and maternal acidosis thus indicating "that foetal asphyxia can be diagnosed early by measuring maternal metabolic acidosis during labour." Maternal and fetal acidosis was found to be significantly reduced when sodium bicarbonate was administered to the mother.

829. Rorke, Lucy Balian, and Spiro, Alfred J.: "Cérebral Lesions in Congenital Rubella Syndrome," *Journal of Pediatrics*, 70:243-255, Feb., 1967.

Reported are the methods and results of a neuropathological study of the brains of nine infants under the age of one year with congenital rubella syndrome.

830. Rose, Arthur L., and Lombroso, Cesare T.: "Neonatal Seizure States; A Study of Clinical, Pathological, and Electroencephalographic Features in 137 Full-Term Babies with a Long-Term Follow-Up," *Pediatrics*, 45:404-425, Mar., 1970.

One hundred and thirty-seven full term infants, having had birth weights of 2500 gm or more, and who "developed seizures during the first 3 weeks of life" were studied and followed for a mean period of [illegible] years. The "clinical features" of the neonatal seizures and etiological factors are described. Hypocalcemia was noted in 28 cases. Neonatal electroencephalographic results are presented with the abnormalities classified into four types. Follow-up data is reported, including findings and the relation found between initial EEG results and subsequent outcome. "At the end of the study, about 50% of the subjects were found to be normal, while about 30% had survived with some serious neurological defect, and 20% had died." The neonatal EEG was shown to be valuable in prognosis. Much data are presented in charts, findings are discussed, and a method of "emergency diagnoses and treatment" of metabolic disorders in the neonate is outlined.

831. Rosen, M.G., and Scibetta, J.J.: "The Human Fetal Electroencephalogram. 2.* Characterizing the EEG During Labor," *Neuropadiatrie*, 2:17-26, Aug., 1970. (Series: For I see #836, III see #837.)

Four principles that must be present in "an acceptable fetal EEG monitoring system" are listed, and the EEG monitoring technique developed and used by the authors is described. It was discovered that under normal conditions the EEG patterns found in utero were quite similar to those found after birth. Changes in EEG patterns after the maternal use of merperidine are explained as are various problems that occur in using this monitoring method. "The fetal EEG presents a relatively unused laboratory tool for the study of the fetal brain during birth."

832. Rosen, Mortimer G.: "Effects of Asphyxia on the Fetal Brain," *Obstetrics and Gynecology*, 29:687-693, May, 1967.

The effect of experimentally induced asphyxia on the brain of the fetal guinea pig was studied as described by using the electroencephalogram. The results of 12 acceptable experiments are reported in two categories: "(1) the response of the maternal and fetal brains to tracheal clamping and (2) the recovery phase or the return to normal preclamping brain-wave patterns in both mother and fetus." Asphyxia produced "rapid and recognizable changes" in the fetal EEG. It is suggested "that the electrical activity of the fetal brain may be a sensitive indicator of distress in utero."

833. Rosen, Mortimer G., and Satran, Richard: "The Neonatal Electroencephalogram," *American Journal of Diseases of Children*, 111:133-141, Feb., 1966.

Considered are the clinical applications of the electroencephalogram for neonates. The technique used by the authors, normal neonatal EEG patterns, abnormal EEGs in neonates with clinical evidence of brain damage, "atypical EEGs" in "high risk" infants, "EEG patterns noted in response to sound and light," and the effect which drugs taken by the mother have on the EEG of the neonate are discussed and pictured.

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*This article was published in this particular journal using an arabic numeral rather than a roman numeral as in the rest of this series.

834. Rosen, Mortimer G., and Satran, Richard: "Neonatal Electroencephalography," *American Journal of Obstetrics and Gynecology*, 89:619-625, July 1, 1964. (Series: For II see #835.)

The technique used in obtaining 50 electroencephalograms from a group of newborns is reviewed. The infants were selected because of the various modes employed in their deliveries in order to study the effect of various delivery methods on electrical brain activity. The normal and abnormal tracings are described, pictured, and correlated with some obstetrical factors.

835. Rosen, Mortimer G., and Satran, Richard: "Neonatal Electroencephalography. II. The EEG of the High Risk Infant," *American Journal of Obstetrics and Gynecology*, 92:247-252, May 15, 1965. (Series: For I see #834.)

The meaning in this study of the term "high risk infant" is clarified. Three hundred and seventy-seven tracings were obtained from 194 "clinically normal" newborns. Twenty of these infants, whose mothers had had normal pregnancies and deliveries, comprised the control group. This group had an atypical EEG rate of 9.5% which is considered normal. The "high risk group" consisted of 174 infants, whose mothers had had abnormal antepartum histories or abnormal deliveries. The atypical EEG rate of this group was 23%. The most common findings in these atypical EEG's were "spike and sharp waves." These terms are defined. Limitations of neonatal EEG's are discussed.

836. Rosen, Mortimer G., and Scibetta, Joseph J.: "The Human Fetal Electroencephalogram. I. An Electrode for Continuous Recording during Labor," *American Journal of Obstetrics and Gynecology*, 104:1057-1060, Aug. 1, 1969. (Series: For II see #831, III see #837.)

A technique for continuously recording the human fetal EEG during labor and birth using "specially constructed scalp electrodes" is described and pictured. Preliminary satisfactory results are presented. "The technique is offered as a method for studying the fetal brain during birth."

837. Rosen, Mortimer G.; Scibetta, Joseph J.; and Hochberg, Charles J.: "Human Fetal Electroencephalogram. III. Pattern Changes in Presence of Fetal Heart Rate Alterations and After Use of Maternal Medications," *Obstetrics and Gynecology*, 36:132-140, July, 1970.

Described are the technique used and the findings obtained and compared when fetal EEG monitoring during birth was employed during normal labor, prior to and after maternal drugs had been administered, and in cases involving fetal distress. Also presented are findings concerning the occurrence of "sharp waves before birth." "This technic for study of the fetal brain is suggested as potentially useful in ontogenic studies of brain damage."

838. Rosenbaum, Arthur L.; Churchill, John A.; Shakhashiri, Zekin A.; and Moody, Richard L.: "Neuropsychologic Outcome of Children Whose Mothers had Proteinuria during Pregnancy; A Report from the Collaborative Study of Cerebral Palsy," *Obstetrics and Gynecology*, 33:118-123, Jan., 1969.

By analyzing data on 50,000 women participating in the Collaborative Study, 51 mothers were found who had had proteinuria, as defined, during pregnancy. Data on the 53 infants of these women were studied. They had all "received either the Bayley scale, a test of mental and motor development given at 8 months of age, and/or the Binet I.Q. given at 4 years of age." The proteinuric subjects were matched on listed variables with controls. Five "outcome variables" are also listed, and results concerning these variables are presented. The offspring of the proteinuric mothers demonstrated "poorer neurologic and psychologic performance during infancy and childhood" than did the controls. Possible explanations are discussed.

839. Rosenblith, Judy F.: "The Modified Graham Behavior Test for Neonates: Test-Retest Reliability, Normative Data, and Hypotheses for Future Work," *Biologia Neonatorum*, 3:174-192, 1961.

In conjunction with the collaborative project of the NINDB the Graham Behavior Test for Neonates was examined as a possible neonatal prognostic device for cerebral palsy, mental retardation, etc. Detailed analyses of the subtests and score patterns are reported, and conclusions are listed in the "Summary."

840. Rosenblith, Judy F.: "Prognostic Value of Behavioral Assessments of Neonates," *Biologia Neonatorum*, 6:76-103, 1964.

"Some methodological problems" concerning early diagnosis and treatment of brain damaged children are briefly discussed. The values of the Collaborative Project of the NINDB for research purposes are stated as are the hypotheses from the author's previous study of the Graham Behavior Test for Neonates. Using the revised version of this test, neonates were examined. This report is primarily concerned with the results of the early follow-up exams of 242 of these infants. Data from the project's four-month pediatric and eight-month psychological exams were used as follow-up measures. The following factors, assessed during the neonatal period were compared to the later status (at four and/or eight months) of the infants: behavioral status at 1, 2, 3, and 4 days of age; Apgar scores; and neonatal status of the 31 premature infants included. Findings and conclusions are listed in the "Summary."

841. Rosenblith, Judy F., and Anderson, Rebecca B.: "Prognostic Significance of Discrepancies in Muscle Tension Between Upper and Lower Limbs," *Developmental Medicine and Child Neurology*, 10:322-330, June, 1968.

Infants who at birth had shown discrepancies in muscle tension between the upper and the lower limbs were examined at eight months of age. The tension rating system used is described in an appendix. The data is examined in relation to the neonatal assessment to determine the degree of discrepancy, the direction of the discrepancies from the normal, and which pair of limbs displayed hypertension or flaccidity. Medical background is also examined. Results are presented and related to prognosis.

842. Rosenblith, Judy F.; Anderson, Rebecca B.; and Denhoff, E.: "Hypersensitivity to Light, Muscle Tonus Discrepancies; A Follow-Up Report," *Biology of the Neonate*, 15:217-228, 1970.

Hypersensitivity to light had been found to be a possible indicator of neurological damage in the newborn in a previous study involving four infants. These neonates had also been shown to have discrepancies in muscle tone between the upper and lower extremities. A "blind" neurological, speech and hearing assessment of three of these children was conducted at three years of age by also assessing both "normal controls and cases with unusual muscle tonus." All three of the hypersensitive-to-light infants still exhibited neurological abnormalities at age three years. A table details results. "Neonatal hypotonicity in the upper extremities coupled with hypertonicity in the lower is also prognostic of abnormalities in growth and development at three years, more so than at intervening examinations. When coupled with hypersensitivity to light it may be a sign of early cortical damage."

843. Rosenbloom, L.: "The Contribution of Motor Behaviour to Child Development," *Physiotherapy*, 57:159-162, April, 1971.

Considered are the contributions that motor behavior makes to the "physical, intellectual, emotional, and social progress" of the child. Also discussed are the therapeutic implications of the relationship between child development and motor behavior.

844. Rosner, Samuel: "The Relationship Between the Epilepsy of Cerebral Palsy and the Electroencephalogram," *Archives of Pediatrics*, 78:269-271, July, 1961.

A series of 142 children with "complicated cerebral palsy" between ages 6 months to 13 years are described with respect to clinical characteristics, the incidence of epilepsy, electroencephalographic results, the incidence of mental defect, and the "surgical pathology." Conclusions are listed.

845. Ross, E.J., and Christie, S.B.M.: "Hypernatremia," *Medicine*, 48:441-473, Nov., 1969.

The condition is introduced, and normal levels of sodium concentration in plasma are defined. An extensive outline, describing the causes of hypernatremia, is then presented followed by a similar outline concerning clinical manifestations. The fact that "hypernatremia may be both a cause and a result of brain damage" is explained. The effects of the condition on the brain and the possible occurrence of permanent brain damage are described. Also considered are the "consequences of hypernatremia on the distribution of body water and other electrolytes," "renal function in hypernatremia," "aldosterone secretion in hypernatremia," and treatment principles. The article is concluded with a discussion and review of the literature on "the importance of thirst." Numerous studies are mentioned throughout, and a lengthy bibliography follows the text.

846. Rosta, J.; Szoke, L.; and Agfalvi, Rose: "Primitive Reflex Responses of the Newborn in Icterus Gravis," *Clinical Pediatrics*, 4:264-266, May, 1965.

The sucking, rooting, grasp, and Moro reflexes were studied in a group of 204 newborns with icterus gravis. When the reflexes were tested, a significant relationship was found "between loss or decrease of the reflexes and the level of serum bilirubin." A decrease in sucking and "poor rooting reflexes" were the first signs of abnormality, and "loss of the grasp or Moro reflex suggests that kernicterus is imminent." The value of these reflexes as aids, with other tests, in determining the need for exchange transfusion is stated.

847. Rostafinski, Michael J.: "Maternal Age, Birth Rank and Prenatal Encephalopathies," *Virginia Medical Monthly*, 92:71-75, Feb., 1965.

One hundred and eighteen children who were age 10 or under and admitted to the Lynchburg Training School and Hospital in Virginia were studied "to determine whether there are factors other than the maternal age and birth rank contributing to the development of congenital encephalopathies." The children were divided into three groups: 1) "natal and postnatal encephalopathies," 2) "prenatal encephalopathies," and 3) "mongolism." Scattergrams and regression lines for each of the three groups are presented to show the relationships found. Significant differences among the three groups were detected. More patients were born to young mothers having low birth ranks in Group 1, while the patients in Group 2 were more uniformly distributed. Comparison of regression lines revealed differences which indicated "that in the occurrences of prenatal conditions, factors other than the normal interaction of maternal age and birth rank are in operation."

848. Roux, Jacques F.; Wilson, Ray; Yeni-Komshian, H.; Jassani, M.; and Jordan, J.: "Labor Monitoring; A Practical Experience," *Obstetrics and Gynecology*, 36:875-880, Dec., 1970.

A monitoring procedure that involved the measuring of intrauterine pressure, fetal heart rate, and scalp pH, and that was used in a "research-type hospital" is described. Also presented is a similar procedure that was used at a community hospital. Results are given, and the problems and limitations of labor monitoring are discussed. "It is concluded that the major contribution of present-day monitoring methods is the attention that the obstetrician and nurse focus on the fetus and uterus of high risk patients."

849. Rowley, William F.; Tannrikulu, Orhan; Grossman, Aaron; and Hsia, David Yi-Yung: "A Controlled Study on Effect of Promethazine Hydrochloride and Meperidine Hydrochloride upon Serum Bilirubin Levels in the Newborn Infant," *Journal of Pediatrics*, 62:934-935, June, 1963.

A study is described in which the two drugs in question, when used either singly or combined, were found not to "significantly contribute to hyperbilirubinemia in the full term infant."

850. Rozdilsky, B.: "Kittens as Experimental Model for Study of Kernicterus," *American Journal of Diseases of Children*, 111:161-165, Feb., 1966.

A method of using kittens in the "study of bilirubin toxicity in vivo" is described. Over 50 newborn kittens, who received 3 bilirubin solution injections, developed signs of brain damage and died between 24-60 hours after the first injection. When 30 kittens were given the bilirubin solution mixed with a "protective dose" of albumin and 25 kittens were given only the bilirubin, 27 of the 30 experimental kittens showed no signs of brain damage but were deeply jaundiced and were killed 60 hours after the injection. All 25 of the control kittens died 24-60 hours after injection. The value of using kittens in such experiments and the value of albumin in preventing brain damage in hyperbilirubinemia are discussed.

851. Rupp, Ralph R., and Wolski, William: "Hearing Testing in Young Children; Simple Technics Adaptable to Pediatric Office Practice for Screening Neonates, Infants, and Young Children," *Clinical Pediatrics*, 8:263-267, May, 1969.

The following audiologic procedures for use with young children are reviewed: "neonatal screening by intense sound," "infant screening by distraction" for use with infants ages 3 to 30 months, various types of "play audiometry" for use with children after the age of 30 months, and "simplified adult audiometric technics" for use with children over 5 years of age.

852. Ruppert, Elizabeth S., and Johnson, Ernest W.: "Motor Nerve Conduction Velocities in Low Birth Weight Infants," *Pediatrics*, 42:255-260, Aug., 1968.

Nerve conduction velocity was measured in the ulnar, median, and peroneal nerves at three days of age and at monthly intervals thereafter until age 12 months on eight full term and 11 preterm infants, all of whom had birth weights under 2,500 gm. The conduction velocities of the preterm group were significantly lower at birth, but by six months of age the conduction velocities of the two groups were "similar." "This technique affords an objective measurement of the maturity of the peripheral nervous system and the gestational age of the infant."

853. Russell, Elspeth M.: "Cerebral Palsied Twins," *Archives of Disease in Childhood*, 36:328-336, June, 1961.

Forty-four cerebral palsied twins were matched with 44 control twins with respect to "age of mother at delivery, social class of father and birth order" in an attempt to determine adverse factors in multiple pregnancies which cause cerebral palsy. The two groups were compared on a number of factors including fate of the other twin, sex, birth order, birth weight, maturity, pregnancy, delivery, neonatal course, ovularity, intelligence, sensory defects, and epilepsy." It is concluded that "in the majority of cerebral palsied twins the cerebral defect is unrelated to abnormalities of pregnancy and parturition or to maternal age. The most important factor appears to be low birth weight due either to multiple pregnancy alone, or to a combination of multiple pregnancy and preexisting foetal abnormality."

854. Russell, Elspeth M.: "Correlation between Birth Weight and Clinical Findings in Diplegia," *Archives of Disease in Childhood*, 35:548-551, Dec., 1960.

Birth weights of 200 diplegic children, ages 14 months to 13 years, were assessed and compared with the factors of intelligence, epilepsy, and strabismus. The patients were divided into two groups: paraplegics and tri- or tetraplegics. Terms are defined. Findings showed that the paraplegic patients were more likely to have been premature by weight at birth, were more intelligent, and showed less incidence of epilepsy. No differences between the two groups with respect to the incidence of strabismus was noted.

855. Russell, J.G.B.: "Radiological Assessment of Fetal Maturity," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 76:208-219, Mar., 1969.

Five methods of determining the maturity of the fetus are listed. Three thousand six hundred six cases were radiologically examined in order to assess the value of this method, and the factors of "parity, age of the mother, sex of the child, socioeconomic status of the parents, weight of the fetus, and season of the year were studied to determine their effect on radiological development rate. None of these were found to have any significant effect. Radiological immaturity and postmaturity were considered in relation to mortality rates. Much data was statistically analyzed and is presented. Conclusions are listed. The method is concluded to be "a valuable aid" in assessing fetal maturity but "is fallible in individual cases."

856. Rux, Robert E.: "Standing Platforms for Nonambulatory Patients," *Physical Therapy*, 51:1013-1016, Sept., 1971.

The need for physical handicapped and/or mentally retarded children to have adequate sensory and social stimulation is emphasized through a brief review of the literature. Individual and group standing platforms are described and pictured as a means of "assisting these children to become ambulatory." Construction details are given, and the values of these "stand-ups" are discussed. "The stand-up because of its design and function, offers the children security and the opportunity to develop strength, endurance, balance, and coordination, to stretch undesirable contractures, to perceive different sensations, and to engage in interpersonal interactions."

857. Ruys, J.H., and van Gelderen, H.H.: "Administration of Albumin in Exchange Transfusion," *Journal of Pediatrics*, 61:413-417, Sept., 1962.

The effect of administering albumin previous to exchange transfusion was studied in three infants with hyperbilirubinemia. On the basis of results the procedure is not recommended because "no increase in the concentration of indirect serum bilirubin" was detected, but "an unmistakable temporary increase of blood volume" was revealed. A slow exchange transfusion is suggested as being a safer and effective method of bilirubin removal.

858. Sachdev, K.K.; Taori, G.M.; and Pereira, S.M.: "Neuromuscular Status in Protein-Calorie Malnutrition; Clinical, Nerve Conduction, and Electromyographic Studies," *Neurology*, 21:801-805, Aug., 1971.

Studied were 30 children with kwashiorkor and 43 normal children, most of whom were between the ages of 18 months to four years. All were given neurological examinations. Neurological abnormalities detected in the children with kwashiorkor are listed and included mental changes, muscle wasting, general weakness, hypotonia, hyporeflexia, and gait abnormalities. "Nerve conduction velocity was delayed in 12 children," and "the needle EMG was abnormal in 14 of the 18 patients studied." "It is suggested that in sick, apathetic, and malnourished children in whom an accurate clinical assessment of motor and sensory function is not possible, nerve conduction and needle EMG studies are simple, reliable, and helpful in delineating neuromuscular status."

859. Sack, Robert A.: "The Large Infant; A Study of Maternal, Obstetric, Fetal, and Newborn Characteristics, Including a Long-Term Pediatric Follow-Up," *American Journal of Obstetrics and Gynecology*, 104:195-204, May 15, 1969.

A survey of the records of a large county hospital from the period 1947-1956 revealed that 766 infants were delivered that weighed 10 lbs. or more. These cases were studied "with respect to maternal, paternal, obstetric, fetal, and newborn characteristics." Results are reported. One hundred fourteen who survived delivery were diagnosed as being "severely depressed." A follow-up study was conducted on 200 of the survivors. Nine died before age seven years. Twenty-three were found to have "a severe neurological disability." A program aimed at improving results was begun in 1956. The features of this program are listed and the results of comparing the 1947-1956 series and the 1966 series are reported. A long-term follow-up evaluation of the infants in the latter series was in progress at the time of publication. "Discussion" follows.

860. Saling, E.: "Amnioscopy and Foetal Blood Sampling; Observations on Foetal Acidosis," *Archives of Disease in Childhood*, 41:472-476, Oct., 1966.

Amnioscopy and fetal blood sampling are discussed as two methods of assessing the condition of the fetus in late pregnancy and during labor. Conditions under which the methods should be used and techniques are described. Also considered are the treatment of acidotic newborns used by the author and the positive results the author received when using the two assessment methods.

861. Saling, Erich: "Amnioscopy" for the Symposium on Amniotic Fluid, edited by Fritz Fuchs. *Clinical Obstetrics and Gynecology*, 9:472-490, June, 1966.

Aspects considered in relation to this "new diagnostic method for recognition of fetal endangering in late pregnancy" are its clinical application; the technique; the indications for its use, including postmaturity, toxemia of pregnancy, amniotomy, and erythroblastosis fetalis; management in the above circumstances; clinical results obtained by the author; "pathophysiologic conclusions"; and the disadvantages of the method. Its safety and simplicity are stressed.

862. Saling, Erich. *Foetal and Neonatal Hypoxia in Relation to Clinical Obstetric Practice.* Translated from the German by F. E. Loeffler. Baltimore: Williams and Wilkins, 1968. 181 pp.

Outlined in this book are the clinical methods of assessing the condition of the fetus during pregnancy and labor. Discussions of the assessment of fetal heart action, amnioscopy, and sampling of fetal blood are included in individual chapters. Chapter 6 is concerned with the response of the fetus to hypoxia and maternal acidosis. Subsequent chapters deal with the treatment of the fetus during labor, the treatment of the "depressed" newborn, and the assessment of the newborn's condition. Description of techniques is frequent as are illustrations. References are in the form of shortened citations.

863. Saling, Erich, and Schneider, Dominique: "Biochemical Supervision of the Foetus during Labor," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 74:799-811, Dec., 1967.

This comprehensive, translated article on the authors' experience in obtaining and analyzing fetal blood samples in 850 cases, having signs of fetal distress, is divided into two parts: Part I is concerned with "The Signs, Evolution and Types of Foetal Acidosis" and Part II is "An Analysis of the Results, Conclusions and Consequences." Results of investigating "the relationship between an abnormal pH and the clinical signs of foetal distress" are presented. Fetal acidosis is classified with the classification applied to the group of cases. The cases were analyzed by subdividing them into groups according to the degree of acidosis and describing the perinatal mortality that occurred within each group. Conclusions, including the consequences of the method, are listed and discussed.

864. Samilson, Robert L.: "Principles of Assessment of the Upper Limb in Cerebral Palsy," *Clinical Orthopaedics and Related Research*, 47:105-115, July-Aug., 1966.

The natural development of hand function in early life is described and compared to the abnormal development seen in children with cerebral palsy. Listed and explained are the "seven most common characteristics of the cerebral palsied hand" and "some of the general neurophysiologic characteristics of spasticity." Also described are the "biomechanical results" of these characteristics; the prerequisites in the cerebral palsied patients, the surgeon, and others for surgery of the upper limb; techniques and equipment which aid in upper limb assessment; the physical examination of the upper limb; and "specific clinical observations and their applications" in relation to the subject.

865. Sandifer, Paul H.: *Neurology in Orthopaedics.* London: Butterworths, 1967. 63 pp.

Considered individually in this volume are various neurological disorders appearing in infancy, childhood, and adulthood. Those disorders of infancy discussed are the "floppy baby syndrome" and cerebral palsy. The types of cerebral palsy are differentiated, clinical symptoms are described, and distinctions are made "between pyramidal and extrapyramidal syndromes," "between static and progressive disorders," and "between mental and neurological causes of handicap."

866. Sass-Kortsak, Andrew. *Kernicterus*. Report based on a symposium held at the IX International Congress of Paediatrics, Montreal, July, 1959. Toronto: University of Toronto Press, 1961. 221 pp.

This volume is the result of the above symposium. Papers within were presented to five panels each having a different area of concern: (A) "Kernicterus of Prematurity: Incidence and Aetiology," (B) "Factors Influencing the Life Span of the Red Blood Cell," (C) "The Metabolism and Excretion of Bilirubin," (D) "The Pathology of Kernicterus and the Cytotoxicity of Bilirubin," and (E) "Factors Influencing the Distribution of Bilirubin in the Body."

867. Saturen, Phoebe, and Tobis, Jerome S.: "Evaluation and Management of Motor Disturbance in Brain-Damaged Children, *Journal of the American Medical Association*, 175:588-591, Feb. 18, 1961.

Common signs of brain damage and assessment methods from birth through childhood are described. During the evaluation process in the first year of life, a home management program "directed toward stimulation and toward prevention of deformity" is suggested. Some of the formal treatment methods developed for brain-damaged children and the author's approach to formal treatment are briefly presented.

868. Saunders, R.V.: "Indications for Residential Treatment in the Early Years of Life," *Developmental Medicine and Child Neurology*, 5:162-163, Apr., 1963.

Early treatment, parental involvement in treatment, and home treatment are advocated for the young child. In areas where clinics, etc. are not available, a plan of mother accompaniment such as that suggested in the Ellis paper is preferred by this author. A summary of the Discussion period at Oxford follows this paper.

869. Schiff, D.; Chan, G.; and Stern, L.: "Fixed Drug Combinations and the Displacement of Bilirubin from Albumin," *Pediatrics*, 48:139-141, July, 1971.

Using two described methods, "the effects of fixed drug combinations on the displacement of bilirubin from albumin were assessed in two commonly used drugs; caffeine sodium benzoate and valium injectable (Diazepam)." "The fixed combination of caffeine sodium benzoate in recommended therapeutic doses (64 mg/ml) was found to affect the bilirubin-albumin binding by both methods." "Diazepam in its injectable form was found to be a potent bilirubin-albumin uncoupler." The importance of assessing the displacement properties of both the components of drugs used for neonates and the components in combination is stated.

870. Schiffer, Morton A.; Ertel, Norman A.; Hellman, Louis M.; and Kobayashi, Mitsuo: "Combined Method for Evaluating Fetal Well-Being by Plasma Estriol Measurements and Ultrasonography," *American Journal of Obstetrics and Gynecology*, 108:1277-1286, Dec. 15, 1970.

Plasma estriol and ultrasonographic measurements were obtained in 21 "high-risk" obstetric patients. The former procedure was used to determine fetal well-being; the latter to assess "fetal size, growth, and age." Methods are described and results are pictured in graphs and a table. It was revealed that when the two methods were used together, the fetal status could be assessed more accurately. The value and application of the combined method in prematurity risks and pregnancy termination are discussed.

871. Schiller, Jack G., and Silverman, William A.: "Uncomplicated Hyperbilirubinemia of Prematurity," *American Journal of Diseases of Children*, 101:587-592, May, 1961.

Daily measurements of serum bilirubin concentrations were made in 188 premature infants during the first week of life. One hundred and ten of these were thoroughly examined at three years of age. A table provides information on the 78 children excluded from follow-up. Of the 110 examined, approximately one-fourth had had "uncomplicated" hyperbilirubinemia as neonates. Approximately one-fifth of these 110 children were found to have definite or suspected brain damage or mental retardation at age three. But no significant correlation could be demonstrated between hyperbilirubinemia and the damaged children. Comment is made.

872. Schindler, Adolf E.; Ratanasopa, Vannee; Lee, Tzu Y.; and Herrmann, Walter L.: "Estriol and Rh Isoimmunization: A New Approach to the Management of Severely Affected Pregnancies," *Obstetrics and Gynecology*, 29:625-631, May, 1967.

Estriol concentrations were compared in maternal urine, maternal plasma, and amniotic fluid in 62 pregnant women with Rh isoimmunization. In 16 of these all three values were obtained simultaneously. While maternal urinary estriol levels and maternal plasma estriol levels were not found to indicate the condition of the fetus with erythroblastosis, amniotic fluid estriol levels did. Severely affected fetuses had consistently low levels. "Determination of the concentration of estriol in amniotic fluid is recommended as an additional safeguard in the management of the Rh isoimmunized patient."

873. Schneider, Jan: "Low Birth Weight Infants," *Obstetrics and Gynecology*, 31:283-287, Feb., 1968.

The incidence, the sequelae, and the prevention of the delivery of low birth weight infants are discussed.

874. Schneider, Joerg, and Preisler, Otto: "Prevention of Rh Sensitization from Fetomaternal Microtransfusions," *Obstetrics and Gynecology*, 28:615-621, Nov., 1966.

Numerous clinical and experimental observations on the subject are reported with results presented from experiments dealing with the "life span of fetal erythrocytes in the adult circulation," "elimination of Rh-positive cord blood with anti-D serum," "experimental prevention of sensitization within the Rh system," and the "clinical application of the experimental data." "To 52 Rh-negative pregnant patients with a fetal transfusion of more than 50 cu. mm., a prophylactic injection of anti-D-serum was given intravenously at the time of delivery. After 3-5 months, none had produced antibodies, whereas one patient produced antibodies in an unprotected control group of 39 patients."

875. Schulman, C.A.; Smith, C.R.; Weisinger, M.; Fay, T.H.: "The Use of Heart Rate in the Audiological Evaluation of Nonverbal Children. Part I. Evaluation of Children at Risk for Hearing Impairment," *Neuropadiatrie*, 2:187-196, Dec., 1970. (Series: For II see #876.)

Hearing was assessed by using three methods in 19 children, ages 3 weeks to 8 years, who were considered to be at risk of audiological impairment for numerous reasons including brain damage and mental retardation and in 5 children, ages 2 1/2 to 13 years, who had normal hearing. The three methods of assessment that were used and compared were "heart rate change, cortical evoked potentials, and conventional audiometry." A table contains data on the characteristics of the subjects, procedures, and results. Apparatus and methods used are also described. "The results of this study suggest that heart rate change is a sensitive measure of auditory functioning, which can be useful in the clinical evaluation of pre- and nonverbal children." The advantages of heart rate change over cortical evoked potentials are discussed.

876. Schulman, C.A., and Wade, Gerald: "The Use of Heart Rate in the Audiological Evaluation of Non Verbal Children. Part II. Clinical Trials on an Infant Population," *Neuropadiatrie*, 2:197-205, Dec., 1970. (Series: For I see #875.)

The hearing of 30 infants, ages 6 weeks to 9 months, who were considered normal but were "at some risk of physical or neurological impairment," was assessed by using apparatus "designed specifically for recording heart rate response to an auditory stimulus." "A Major purpose of the study was to examine the feasibility of testing for hearing levels in infancy under ordinary clinical conditions." Procedures, apparatus, and results are presented. The results indicate that hearing function can be efficiently screened in pre-verbal children using the described methods "when suitable instrumentation is used."

877. Schulte, F.J.; Hinze, Gabriele; and, Schrempf, Gerlind: "Maternal Toxemia, Fetal Malnutrition and Bioelectric Brain Activity of the Newborn," *Neuropadiatrie*, 2:439-460, Apr., 1971.

"Twenty-two small for gestational age newborn infants of toxemic mothers were matched for both age from conception and from birth with 22 normal newborn infants." The two groups were compared in regard to bioelectric brain development. Both groups of infants and the methods used in blood glucose determinations, in polygraphic recordings, and in computer analysis are reported as are the results. Major findings are listed in the "Summary." The bioelectric brain maturation of "the abnormal group" was frequently found to be "retarded and/or abnormal." "The consistent abnormal EEG phenomena could - if at all - only exceptionally be explained by perinatal hypoxia or postnatal hypoglycemia and they occurred in the absence of any other overt postnatal illness. The results suggest that central nervous system maturation does not proceed independently of the nutritional status of the fetus." Results and implications are discussed.

878. Schulte, F.J.; Michaelis, R.; Linke, Ilona; and, Nolte, Renate: "Motor Nerve Conduction Velocity in Term, Preterm, and Small-for-Dates Newborn Infants," *Pediatrics*, 42:17-26, July, 1968.

When nerve conduction velocity was measured in 20 normal, full term infants, 25 normal, small-for-dates infants, 38 preterm infants, 14 pairs of twins, and one set of triplets, "nerve conduction velocity was found to be dependent on the conceptional age but independent from the birth weight of preterm, full-term, and small-for-dates newborn infants, plus twins of different birth weight." Subjects, the procedure, and the apparatus used, and the limitations of the method used are described as are the results. Because the "small-for-dates infants had significantly higher conduction velocity values than preterm infants of comparable weight," it was concluded that "measurement of motor nerve conduction velocity can be useful in differentiating preterm infants from full term, small-for-dates infants of comparable size."

879. Schulte, F.J., and Schwenzel, W.: "Motor Control and Muscle Tone in the Newborn Period; Electromyographic Studies," *Biologia Neonatorum*, 8:198-215, 1965.

Thirty healthy newborns and 33 with abnormal neurological signs were examined electromyographically and compared with respect to the monosynaptic reflex, the subsequent silent period, rhythmical motor activity, the Moro reflex, and spontaneous motor activity. The characteristics of the abnormal infants and the methods used are described as are the results of the various comparisons.

880. Schultz, Wilhemena: "Crawl Board," *Physical Therapy*, 46:508, May, 1966.

Described and pictured is a "crawl board" designed "to facilitate the crawling attempt by overcoming body drag and stimulating activity of the upper and lower extremities" in young cerebral palsied children.

881. Schwartz, James F.: "Neonatal Convulsions; Pathogenesis, Diagnostic Evaluation, Treatment and Prognosis," *Clinical Pediatrics*, 4:595-604, Oct., 1965.

The above aspects are reviewed with several studies mentioned. The fact that neonatal convulsions are symptoms rather than a disease underlies all factors considered.

882. Schwarze, R.; Kintzel, H.W.; and Hinkel, G.K.: "The Influence of Orotic Acid on the Serum Bilirubin Level of Mature Newborn," *Acta Paediatrica Scandinavica*, 60:705-708, Nov., 1971.

Reported are investigations conducted to determine the effect on serum bilirubin levels of orotic acid administered to 52 mature neonates as described. Fifty other newborns acted as controls. "Contrary to the premature infants," (previous study, see Kintzel, et. al.) "in the mature newborn no decrease in the serum bilirubin was achieved by administration of orotic acid. The question of the possible mode of action of the orotic acid is discussed."

883. Scibetta, Joseph J.; and Rosen, Mortimer G.: "Response Evoked by Sound in the Fetal Guinea Pig," *Obstetrics and Gynecology*, 33:830-836, June, 1969.

Such response was evoked and studied by a described method in fetal guinea pigs near term. When low doses of pentobarbital were administered, "the amplitude of the fetal acoustic response is increased with minimal change in latency." Results suggest "that the latency interval increases and amplitude decreases in a distressed fetus." "Such studies provide a model to study the functioning fetal brain and its response to environmental changes."

884. Scibetta, Joseph; Rosen, Mortimer G.; Hochberg, Charles J.; and Chik, Lawrence: "Human Fetal Brain Response to Sound During Labor," *American Journal of Obstetrics and Gynecology*, 109:82-85, Jan. 1, 1971.

An experimental technique to obtain "the human fetal auditory evoked response (AER) to a sound stimulus" during labor is reported. It is hoped that this method may be useful in fetal brain study and may "reflect more closely the identification and prevention of brain damage found in infancy."

885. Scory, Jane; Lieberman, Elaine; and Hurt, Jean Marie: "The Role of the Speech, Hearing and Language Therapist in Cerebral Dysfunction." Paper prepared for the Symposium on "Cerebral Dysfunction: A Treatment Program for Young Children," *Clinical Pediatrics*, 5:357-360, June, 1966.

This role is discussed in relation to the young child. Included are detailed tables in which are described the normal sequence of speech and hearing development in the child from 1 month to 4 years of age. Also in the tables are methods of "encouraging proper speech habits in children with syndromes of cerebral dysfunction" within this age range.

886. Scrutton, D.R.: "Footprint Sequences of Normal Children Under Five Years Old," *Developmental Medicine and Child Neurology*, 11:44-53, Feb., 1969.

A study was conducted to provide information on the gait of normal children so that those known or suspected of having retarded or pathological movement could be compared with the normal. Data was obtained from 97 normal children ranging in age from 13 mos. to 4 years 11 mos. A method of gait analysis is presented, and the changes in step lengths and base and foot angles occurring within the age range are given. Tables show the distribution of values for the most relevant measurements.

887. Scrutton, David: "Prevention and Management of Incorrect Spinal Posture in Cerebral Palsy," *Developmental Medicine and Child Neurology*, 8:322-326, June, 1966.

Preventive recommendations are made, and equipment for sitting on a chair, sitting on the floor, and lying is described.

888. Scrutton, David: "A Ramp-Shaped Cushion for Prone Lying," *Developmental Medicine and Child Neurology*, 13:228-230, April, 1971.

The construction of such a cushion and suggestions for usage for infants with cerebral palsy and other disorders are presented.

889. Seeds, A.E., and Behrman, R.E.: "Acid-Base Monitoring of the Fetus during Labor with Blood Obtained from the Scalp," *Journal of Pediatrics*, 74:804-807, May, 1969.

The physiologic rationale behind this method, the technique, and its present clinical value are described with numerous problems mentioned. The authors, at this time, do not advocate routine usage. More data is needed.

890. Semans, Sarah: "Specific Tests and Evaluation Tools for the Child with Central Nervous System Deficit." Adapted from a paper presented at the Symposium on The Child with Central Nervous Deficit, 1964. *Physical Therapy*, 45:456-462, May, 1965.

Aspects of evaluation of concern to the physical therapist are described. The assessment of motor behavior is emphasized. Three major areas to be evaluated are listed and separately discussed. These are the developmental, the pathological, and the adaptive areas. The values and uses of developmental tests are explained with several developmental scales described. The importance of testing equilibrium reactions is mentioned. Also described is "The Assessment Chart of Motor Abilities" and the manner in which it was developed. This chart is presented and further explained in the article following this one in the journal.

891. Semans, Sarah; Phillips, Rosalyn; Romanoli, Madeline; Miller, Ruth; and Skillen, Mary: "A Cerebral Palsy Assessment Chart; Instructions for Administration of the Test," *Physical Therapy*, 45:463-468, May, 1965.

This Assessment Chart and instructions for administering each test item are presented. Also explained are the values of the test, the testing procedures, and the grading system used.

892. Servin, Steve, and Janerich, Dwight T.: "Four Factors Influencing Birth Weight," *British Journal of Preventive and Social Medicine*, 25:12-16, Feb., 1971.

The influences of birth order, maternal age and seasonal and secular trends on the birth weight of a population of 1,524,229 births were studied. "Mean birth weight was found generally to increase with increases in both maternal age and birth order. When the joint influences of these variables on birth weight were separated a more complicated picture emerged." Highest mean birth weight infants were born in March, April, and May, and infants born during the summer were found to "have significantly lower than average birth weights." "The secular trend in birth weight was downward and this pattern was also consistent for all birth orders."

893. Sever, John L.; Hardy, Janet B.; Nelson, Karin B.; and Gilkeson, Mary Ruth: "Rubella in the Collaborative Perinatal Research Study. II. Clinical and Laboratory Findings in Children Through Three Years of Age," *American Journal of Diseases of Children*, 118:123-132, July, 1969. (Series: For I see #894.)

This longitudinal study involved the observation of 6,161 pregnant women in the United States during the 1964 rubella epidemic. Data are presented on these women and their children through age three. The study plan, the subjects, and the tests administered to the women and children are described. Pregnancy results are given in tables, and comment is made on the findings.

894. Sever, John L.; Nelson, Karin B.; and Gilkeson, Mary Ruth: "Rubella Epidemic, 1964: Effect on 6,000 Pregnancies. I. Preliminary Clinical and Laboratory Findings Through the Neonatal Period: A Report from the Collaborative Study on Cerebral Palsy," *American Journal of Diseases of Children*, 110:395-407, Oct., 1965. (Series: For II see #893.)

Reported are the clinical and laboratory data from this longitudinal study of 6,161 women who were pregnant during the rubella epidemic of 1964. Detailed information is presented on the infants born to 750 of these women who had either experienced clinical rubella during the pregnancy or had been exposed during the first trimester but did not develop the disease. Tables show the pregnancy outcomes and the abnormalities found in the infants through the neonatal period in this subgroup of 750 pregnancies. Findings on the specific abnormalities recognized and on "reproductive wastage" are described in detail. The "Summary" consists of a listing of results in brief form.

895. Sever, John, and White, Lon R.: "Intrauterine Viral Infections," *Annual Review of Medicine*, 19:471-486, 1968.

The frequency of infections occurring during pregnancy is described. "Infections known to affect the fetus and the newborn" and their effects are listed. Those individually discussed include rubella, cytomegalovirus, and herpes simplex. Also considered is the value of determining IgM levels in the cord and in neonatal serum as a means of detecting congenital infections.

896. Sharma, Santosh D., and Trussell, Richard R.: "The Value of Amniotic Fluid Examination in the Assessment of Fetal Maturity," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 77:215-220, Mar., 1970.

Amniotic fluid specimens from 418 patients were obtained and analyzed "at various stages of pregnancy and in the first stage of labour." Methods are described. The patients were divided into five groups on the basis of whether single or serial samples were taken and on the basis of whether or not gestational duration was certain. One group contained twin pregnancies. A relationship was revealed between the proportion of orange stained cells and the degree of fetal maturity. "The technique was particularly valuable for distinguishing between immature and small-for-dates infants and was useful in assessing fetal maturity in patients for whom induction of labour or elective Caesarean section was planned."

897. Shelley, Heather J., and Neligan, G.A.: "Neonatal Hypoglycaemia," *British Medical Bulletin*, 22:34-39, 1966.

The clinical characteristics of this condition are described as is the work that has been done on the measurement of normal blood-glucose concentration. Also considered are the "control of the blood-glucose concentration" and the normal tolerance to hypoglycemia seen in newborns. Many pertinent studies are mentioned.

898. Shelley, Ursula: "Early Diagnosis of the Brain-Injured Child," *Physiotherapy*, 49:106-115, Apr. 10, 1963.

Sixteen "symptoms and signs which are shown by brain-damaged babies at different stages" are listed, and numerous "primary reflexes" are individually described with their differences in normal and brain-damaged children noted. The "early activity" of normal and brain-damaged infants is compared with photographs illustrating differences. Also described are the "righting reflexes" and their development in normal and brain-damaged babies.

899. Sheridan, Mary D.: *The Handicapped Child and His Home*. London: National Children's Home, 1965. 63 pp.

In this book is published the Convocation Lecture delivered by the author in 1965. In the four chapters of the book, Dr. Sheridan discusses the "basic needs of normal and handicapped children"; early identification, assessment, and treatment of handicapped children; the guidance of parents of handicapped children; and "special education, periodic reassessment and final placement in the community."

900. Shipe, Dorothy; Vanderberg, Steven; and Williams, R.D. Brooke: "Neonatal Apgar Ratings as Related to Intelligence and Behavior in Preschool Children," *Child Development*, 39:861-866, Sept., 1968.

Sixty-six infants having Apgar scores of five or below at birth were matched with a like number having had an Apgar rating of 10. Thirty-three of these matched pairs and 11 unmatched children were given the Vineland Social Maturity Scale and the Pacific Multifactor Test at approximately 30 months of age. Six months later 24 matched pairs and 17 unmatched subjects returned to be given the Stanford-Binet, L-M, and a Parent Questionnaire was completed. Data on test results are presented and indicate that "low Apgar scores at birth were not related to later performance on psychometric tests or personality ratings."

901. Shubeck, Frank; Benson, Ralph C.; Clark, William W., Jr.; Berendes, Heinz; Weiss, William; and Deutschberger, Jerome: "Fetal Hazard after Rupture of the Membranes; A Report from the Collaborative Project," *Obstetrics and Gynecology*, 28:22-31, July, 1966.

Data from 17,237 pregnant women and their babies in the Collaborative Project were analyzed "to determine whether there is an increasing threat to the fetus the longer it remains within the uterus after rupture of the membranes." Cases of spontaneous and artificial rupture of the membranes were differentiated, and frequency distributions were derived and are presented to show the relations between a number of variables and the interval from membrane rupture to birth. It was found that "inflammation of the membranes, cord, and fetus varies directly with increasing time between membrane rupture and the onset of labor."

902. Silberberg, Donald H.; Johnson, Lois; and Ritter, Linda: "Factors Influencing Toxicity of Bilirubin in Cerebellum Tissue Culture," *Journal of Pediatrics*, 77:386-396, Sept., 1970.

Previous work on the relationship between unconjugated bilirubin and kernicterus is reviewed. An experiment is reported in which "the relationship of pH and bilirubin:albumin ratio to the occurrence of bilirubin-induced damage in cerebellum cultures" was studied. Methods are described. Observation by light microscopy revealed a definite sequence of changes caused by sufficient amounts of unbound bilirubin. When the pH of the medium averaged "above 7.62 during the last 12 hours of the culture's lives" and the bilirubin:albumin molar ratio was held constant, high concentrations of bilirubin were not toxic. But when there was a decrease in pH below this level, cell damage increased proportionately, and when the bilirubin:albumin ratio was increased greater cytotoxicity occurred. "These findings support the thesis that unbound unconjugated bilirubin is responsible for neurological damage." Additional findings are reported, and results are interpreted.

903. Silberberg, Donald H.; Johnson, Lois; Schutta, Henry; and Ritter, Linda: "Effects of Photodegradation Products of Bilirubin on Myelinating Cerebellum Cultures," *Journal of Pediatrics*, 77:613-618, Oct., 1970.

"To study the possible neurotoxicity of the breakdown products" when bilirubin undergoes photodegradation, some myelinating cerebellum cultures were exposed "to media containing light-irradiated bilirubin and its photodecomposition products" while two other groups of cultures were respectively exposed to media containing the same amount of bilirubin but kept in the dark and media which was irradiated but contained no bilirubin. The media pH was low enough for unirradiated bilirubin to cause toxicity. No damage was seen in the cultures "exposed to irradiated media in which the remaining diazotizable bilirubin was below 14 mg. per cent." The cultures exposed to unirradiated media received severe damage. The evidence supports the thesis that the use of phototherapy to prevent kernicterus is safe.

904. Simonson, E.D.; Schoen, Joanne A.; and Boyd, J.R.: "Experiences in Assessing Fetal Acid-Base State," *American Journal of Obstetrics and Gynecology*, 107: 754-761, July 1, 1970.

Related in this article is the experience of the authors with microanalysis of fetal scalp blood as a method of detecting fetal distress. The method used to obtain the samples in 159 patients during labor is described. Forty of these patients, who had no obstetrical problems and showed no signs of fetal distress, were the control group. The other patients showed clinical evidence of fetal distress (69), toxemia (26), anemia (7), premature rupture of the membranes (9), or Rh sensitization (8). The relationship between pH value and Apgar score was determined for each group of patients. The conclusion was that fetal blood sampling is "a safe, simple, and an accurate method of evaluating fetal well-being" and is a useful and practical technique in the community hospital setting. "Comment" is made on other factors pertinent to the usage of the method and "Discussion" follows.

905. Singer, Judith; Westphal, Milton; and Niswander, Kenneth: "Relationship of Weight Gain during Pregnancy to Birth Weight and Infant Growth and Development in the First Year of Life; A Report from the Collaborative Study of Cerebral Palsy," *Obstetrics and Gynecology*, 31:417-423, Mar., 1968.

"Data on approximately 10,000 children in the Collaborative Study of Cerebral Palsy were analyzed" in a described manner to determine the above relationship. "The data indicate that the greater the maternal weight gain during pregnancy, the better the birth weight and growth and performance in the first year of the infant's life." It is suggested that the abandonment of obstetric practices of controlling weight during pregnancy may result in a lower incidence of prematurity and thus a reduction in mortality and morbidity.

906. Sinniah, D.; Tay, L.K.; and Dugdale, A.E.: "Phenobarbitone in Neonatal Jaundice," *Archives of Disease in Childhood*, 46:712-715, Oct., 1971.

Serum bilirubin levels were studied in 41 jaundiced newborns to whom phenobarbitone was administered as described and in 42 jaundiced neonates who received no phenobarbitone. Of the 41 treated cases, 28 had normal birth weights and 13 had low birth weights. Of the 42 control cases, 32 had normal birth weights and 10 had low birth weights. In the infants of normal birth weight, mean serum bilirubin levels were significantly lower 48 hours after the initiation of treatment and no cases required exchange transfusion. Six of the normal birth weight controls required transfusion. "There were no significant differences in the mean serum bilirubin levels or in the exchange transfusion rates between treated and control low birth weight infants."

907. Sisson, Thomas R.C.: "Phenobarbital and Neonatal Jaundice," *Clinical Pediatrics*, 10:683-684, Dec., 1971.

Various methods of treating and/or preventing neonatal jaundice are mentioned. The qualities of phenobarbital that make it a promising drug in such treatment are described, and its use to date is reviewed. Then possible disadvantages of phenobarbital administration are considered, including "the possibility that phenobarbital administered to the fetus or newborn may affect protein synthesis in the brain."

908. Sisson, Thomas R.C.; Kendall, Norman; Glauser, Stanley C.; Knutson, Susan; and Bunyaviroch, Emorn: "Phototherapy of Jaundice in Newborn Infants. I. ABO Blood Group Incompatibility," *Journal of Pediatrics*, 79:904-910, Dec., 1971.

Thirty-five neonates with hyperbilirubinemia were assigned to either a phototherapy treatment group (19) or to a control group (16). Sixteen of the infants had birth weights of less than 2500 gm. Treatment methods, results, and discussion of the lamps used for phototherapy, the influences of birth weight and of race, and the need for exchange transfusions are presented. "Phototherapy caused a marked decline of serum bilirubin concentration at a time when such levels were rising in the control infants and prevented mean peak bilirubin concentrations in the treated infants from reaching the levels attained by the control infants. No treated infants required exchange transfusion, but five of the control infants did. The heavier skin pigmentation in Negro subjects did not reduce the effectiveness of phototherapy."

909. Slatin, M.: "Extra Protection for High-Risk Mothers and Babies," *The American Journal of Nursing*, 67:1241-1243, June, 1967.

A public health nursing instructor optimistically reports on the intrapartum clinic begun at the University of Nebraska to provide comprehensive preconception, prenatal, delivery, and postnatal care for both mothers and children. The project is focused on women who have, or may have, conditions perilious to themselves or their babies, and who would not receive adequate care because of their low incomes.

910. Smallpiece, Victoria, and Davies, Pamela A.: "Immediate Feeding of Premature Infants with Undiluted Breast-Milk," *Lancet*, 2:1349-1352, Dec. 26, 1964.

One hundred and eleven newborns, weighing between 2 lbs. 3 oz. and 4 lbs. 6 oz. at birth, were fed undiluted breast milk very soon after birth using a described procedure. Findings concerning blood glucose and serum bilirubin levels and the time required to regain birth weight are presented and are discussed in relation to related literature. It was concluded that "early and adequate feeding" lowers serum bilirubin levels and "almost eradicates symptomatic hypoglycaemia." Early feeding also reduced the time taken to regain birgh weight and thus may be instrumental in reducing the incidence of spastic diplegia.

911. Smyth, C.N.: "Exploratory Methods for Testing the Integrity of the Foetus and Neonate," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 72:920-925, Dec., 1965.

Several techniques to assess the condition of the fetus and newborn are listed and briefly reviewed. The need for obstetricians and pediatricians to be aware of these methods for the purposes of prevention and early diagnosis is stressed.

912. Solomon, G.E.; Hilal, S.K.; Gold, A.P.; and Carter, S.: "Natural History of Acute Hemiplegia of Childhood," *Brain*, 93:107-120, 1970.

Eighty-six children having had acute hemiplegia in childhood were reevaluated from 6 months to 20 years after onset in order to establish criteria for the prognosis of "future seizures, residual hemiparesis, intellectual capacity, and behavior disorders." Methods are described. The children were divided into etiological groups. This report is mainly concerned with two of these groups in which 41 patients were included. Of concern are those cases having "documented occlusive vascular disease" and those cases of "unknown origin." A classification system for occular vascular disease based on the angiograms of the 16 patients having this condition was devised. Five subgroups of the disease comprised the system, and each is explained. It was found that prognosis could be indicated in these two etiological groups. When seizures occurred at the onset of hemiparesis, the prognosis on the variables studied revealed to be poor. "Those children who began the illness with seizures were usually under 2 years of age." The value of angiography in both diagnosis and prognosis is stressed.

913. Solomons, G.; Holden, R.H.; and Denhoff, E.: "The Changing Picture of Cerebral Dysfunction in Early Childhood," *Journal of Pediatrics*, 63:113-120, July, 1963.

Twelve infants, studied in the Child Development Study at Brown University and considered on the basis of examinations to be "neurologically suspicious or abnormal" in the first year of life, were divided into two clinical groups at 12 months of age and followed for from one to three years. Group I contained five children having "spastic type of cerebral palsy," and Group II consisted of seven children having "developmental retardation." During follow-up four of the five cases of cerebral palsy were considered to be "completely resolved" and four out of the seven cases of developmental retardation were considered normal. Some of the case histories are presented, and trends seen in the two groups are described. "This changing picture demonstrates the need for caution in the interpretation of neurologic findings in early childhood and emphasizes the need for reappraisal of our present methods of examination."

914. Spira, Ralph: "Management of Spasticity in Cerebral Palsied Children by Peripheral Nerve Block with Phenol," *Developmental Medicine and Child Neurology*, 13:164-173, April, 1971.

Solutions of phenol were used to block selected peripheral nerves in 61 children having spastic cerebral palsy. The age range was from two to eight plus years. The technique, the indications for treatment, the children, the follow-up methods, the results, the complications, and the implications are described. A total of 136 phenol blocks were performed. "Reduction of spasticity was achieved in a very large proportion of cases immediately following the injection, but there was large variation in the extent and duration of the relief obtained."

915. Stechler, Gerald: "A Longitudinal Follow-Up of Neonatal Apnea," *Child Development*, 35:333-348, June, 1964.

In a prospective study of 26 neonates, nine were classified at delivery as being apneic and 17 as normal. The infants were given the Gesell Developmental Scales as described between 6 weeks and 25 months of age and IQ tests as described between 35 and 59 months of age. Test results and analysis of data are presented. The apneic infants "were found to have significantly lower DQs during most of the first two years of life, although no difference was found at ages two and three years." "Their functioning was more variable from test to test, and their early scores are less predictive of outcome at age three than is true of the normal infants." These findings are interpreted.

916. Steer, Charles M., and Bonney, Walter: "Obstetric Factors in Cerebral Palsy," *American Journal of Obstetrics and Gynecology*, 83:526-531, Feb. 15, 1962.

Past etiological studies are reviewed. The obstetrical histories of 317 cerebral palsied patients were studied from the hospital charts with the disadvantages of this method being noted. In 276 of these cases the cerebral palsy was "unexplained," and these cases were then studied further with respect to the occurrence of multiple births, order of birth, prematurity, method of delivery, direct injury, asphyxia, maternal complications, and Caesarean Section delivery. Principle findings included a 28.6% incidence of prematurity and a 57% incidence of anoxia. Other results are listed and other possible undefined causes are discussed.

917. Stembera, Z.K., and Hodr, J.: "II. Mutual Relationships between the Levels of Glucose, Pyruvic Acid and Lactic Acid in the Blood of the Mother and of Both Umbilical Vessels in Hypoxic Fetuses," *Biologia Neonatorum*, 10:303-315, 1966.

Seventy hypoxic fetuses were divided into three groups according to the severity of the hypoxia and compared with respect to the blood levels of glucose, pyruvic acid, and lactic acid present in "the cubital vein of the mother just before birth" and in "both umbilical vessels just after birth." The relationships between these levels in the normal fetus had been determined by the authors in a previous study. The hypoxic fetus was found to produce more glucose and lactic acid as the extent of hypoxia increases. Reasons for this are discussed. It was concluded "that these changes are due to an increased part played by anaerobic glycolysis in the fetus due to impairment of the fetoplacental circulation." This is explained further.

918. Sterling, Harold M.: "Pediatric Rehabilitation," *Archives of Physical Medicine and Rehabilitation*, 48:474-479, Sept., 1967.

Among the topics of concern to the author in this paper are the family's role in the rehabilitation of the handicapped child, the child's readiness for treatment, the importance of history taking and physical examination, and frequent physical and intellectual problems of the handicapped child.

919. Stern, C.A.: "Delivery and the Defective Child; The Role of Obstetrics," *South Dakota Journal of Medicine*, 19:27, 30-32, June, 1966.

The types of etiological studies being done involving the defective child - retrospective and prospective - are described. Considered individually are the roles of labor, analgesia and anesthesia, birth trauma, prematurity, twinning, and "miscellaneous maternal factors" in the etiology of the defective child.

920. Stern, Francine Martin: "The Reflex Development of the Infant," *American Journal of Occupational Therapy*, 25:155-158, Apr., 1971.

Two sets of processes that take place in the acquisition of normal motor behavior are described. These are "the development of the normal postural reflex mechanism" and "the inhibition of some of the responses of the newborn." These processes are interferred with in the presence of cerebral palsy, etc. Spinal reflexes, righting reactions, and equilibrium reactions and their normal development are described as is the normal motor development during the first two months of life and during "the next 10 months." The tonic reflexes and how they retard development in the brain damaged child are explained.

921. Stern, Leo, and Denton, Ronald L.: "Kernicterus in Small Premature Infants," *Pediatrics*, 35:483-485, Mar., 1965.

"Six cases of kernicterus in small premature infants in the absence of hemolytic disease" are discussed. All of the infants died. Four of the six never had bilirubin levels over 20 mg./100 ml. It is suggested that hypercapnoea, acidosis, and asphyxia were "involved in the occurrence of kernicterus in these babies" and that exchange transfusions be performed "at lower levels" in such cases.

922. Stern, Leo; Khanna, Narinder N.; Levy, Gerhard; and Yaffe, Sumner J.: "Effect of Phenobarbital on Hyperbilirubinemia and Glucuronide Formation in Newborns," *American Journal of Diseases of Children*, 120:26-31, July, 1970.

When 20 newborn, full term infants were given Phenobarbital for four days after birth, "significantly lower concentrations of serum indirect bilirubin" were found in comparison to the same number of control infants. When 10 infants with elevated serum bilirubin levels were given Phenobarbital from the fifth to the ninth day of life, levels were significantly lower by the tenth day than they were in the 10 control infants. The methods and results of "in vivo glucuronidation studies," with salicylamide used as a substrate, are also presented. Ten infants pretreated with Phenobarbital "showed a more pronounced average increase in the glucuronide fraction between the fifth and tenth day of life" than did 14 control infants. Implications are discussed.

923. Stewart, A.G., and Taylor, W.C.: "Amniotic Fluid Analysis as an Aid to the Ante-Partum Diagnosis of Haemolytic Disease," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 71:604-608, Aug., 1964.

The amniotic fluid samples from 93 pregnancies were obtained and analyzed for bilirubin content. Methods are explained. Upon delivery 51 of the infants were normal, as defined, 37 had hemolytic disease with seven of these being stillborn, "4 were anencephalic stillbirths, and 1 had aesophageal atresia." A relationship was revealed between a high bilirubin level in the amniotic fluid and the presence of hemolytic disease. It is suggested "that amniotic fluid bilirubin analysis is a valuable diagnostic tool but that it alone is not sufficient in all cases."

924. Stewart, R.J.C., and Platt, B.S.: "The Influence of Protein-Calorie Deficiency on the Central Nervous System," *Proceedings of the Nutrition Society*, 27: 95-101, Mar., 1968.

Experiments on dogs involving the "production of congenital protein-calorie deficiency" are reported. "Dramatic changes" were noted when dogs of protein-calorie deficient mothers were put on protein deficient diets after weaning. Their posture and gait were abnormal as described and convulsions often occurred. "The intensification of the abnormal appearances during weeks 8-13 is followed by a partial recovery, but the congenitally malnourished animals continue to exhibit more marked abnormalities than those subjected to protein-calorie deficiency only after weaning." Implications are considered.

925. Stimmler, L.: "Infants Who Are Small for Gestational Age," *Proceedings of the Royal Society of Medicine*, 63:500-501, May, 1970.

Two groups of such infants are described. "The first is characterized by retarded length in relation to weight." "The infants in the second group are proportionately much more depressed in weight than height and have a wasted appearance." Differing etiological, clinical, and prognostic characteristics of these two groups are described. A retrospective study by A. McDonald of 700 children having birth weights of less than 4 lbs. is reviewed. "Significant differences in the incidence of abnormalities" were found between "those infants who were two standard deviations below the mean expected weight for their period of gestation, compared with those of normal weight." The incidence of cerebral palsy was much higher in those children who were premature.

926. Stine, Oscar C., and Kelley, Elizabeth B.: "Evaluation of a School for Young Mothers; The Frequency of Prematurity Among Infants Born to Mothers Under 17 Years of Age, According to the Mother's Attendance of a Special School During Pregnancy," *Pediatrics*, 46:581-587, Oct., 1970.

"Compared with relation to birth weight, length of gestation, trimester of first prenatal care, and infant mortality" were the 224 births of a group of teen-age mothers who attended a public school program in Baltimore designed for such mothers and the 224 births of a matched control group of teen-age mothers who did not attend such a program. There were significantly fewer "low birth weight" and "premature" infants, as defined, born to the mothers who participated in the program. Although eight infants in the control group died, only one infant died in the group whose mothers attended school. Aspects of the program and implications are discussed.

927. Stoch, M.B., and Smythe, P.M.: "Does Undernutrition during Infancy Inhibit Brain Growth and Subsequent Intellectual Development," *Archives of Disease in Childhood*, 38:546-552, Dec., 1963.

Twenty-one undernourished children, ages 10 months to 3 years, were compared with 21 adequately nourished control children, matched for age and sex, with respect to head circumference, I.Q., weight, height, parental I.Q., and head circumference, and living conditions. Characteristics of the children and examination methods are described. The children were studied "for periods of from two to seven years." Results support the hypothesis stated in the title. Both brain growth, as reflected by head circumference, and the I.Q. of the undernourished group were significantly lower than in the control group with no improvement noted during the study period. Implications are discussed.

928. Stoch, M.B., and Smythe, P.M.: "The Effect of Undernutrition During Infancy on Subsequent Brain Growth and Intellectual Development," *South African Medical Journal*, 41:1027-1030, Oct., 1967.

Twenty extremely undernourished infants from Cape Coloured were matched by age and sex with 20 controls of the same low socioeconomic level and were followed as described for an 11 year period. The groups were compared with regard to head circumference, height, weight, EEG, intelligence, and psychological status. The findings revealed "that under-nutrition during the period of active brain growth has resulted in a significant reduction in brain size and impairment of intellectual development."

929. Stockmeyer, Shirley: "A Pattern for Evaluation in the Assessment of Motor Performance." Adapted from a paper presented at the Symposium on The Child with Central Nervous System Deficit, 1964. *Physical Therapy*, 45:453-455, May, 1965.

Five steps that "are followed in the development and use of an evaluation device" are listed and are discussed separately.

930. Swack, Myron J., and Kokaska, Charles J.: "Programing Mobility Training: The Mathetics Approach," *Exceptional Children*, 36:461-463, Feb., 1970.

A programmed instructional method useful in the mobility training of physically handicapped children is described. The method is called "Mathetics" and was developed by T.F. Gilbert. It is described as being "a sequence of behaviors which begin with task accomplishment and, through successive additions of previous behavior segments, ultimately develop the complete chain of behavior prescribed by the programer." Use of the method in a practical situation is presented.

931. Swaiman, Kenneth F., and Wright, Francis S. *Neuromuscular Diseases of Infancy and Childhood.* Springfield, Illinois: C. C. Thomas, 1970. 261 pp.

A comprehensive description of the various neuromuscular diseases is presented with emphasis on differential diagnosis. In Chapters 1 and 2 aspects of diagnosis and laboratory tests are discussed respectively. The general scheme of the subsequent chapters is to divide upper motor neuron disease from lower motor neuron disease and then further subdivide. Each chapter includes a bibliography.

932. Swinyard, Chester A.; Swensen, James; and Greenspan, Leon: "An Institutional Survey of 143 Cases of Acquired Cerebral Palsy," *Developmental Medicine and Child Neurology*, 5:615-625, Dec., 1963.

The term "acquired cerebral palsy" is defined. The records of 1,283 cerebral palsied children were analyzed, and in 143 of these cases the cerebral palsy was found to have been "acquired" with the range of the age of onset being between 3 months and 15 years. These cases were studied and findings with respect to etiological factors, frequency of the various clinical types of cerebral palsy, degree of motor involvement, "associated non-motor neurological disorders," and "functional status" are reported. Numerous related studies are mentioned as the results are discussed.

933. Sybulski, S.: "Determination of Free Estradiol-17B Levels in Pregnancy Plasma by Competitive Protein-Binding Method," *American Journal of Obstetrics and Gynecology*, 110:304-308, June 1, 1971.

Described is "a competitive protein-binding (CPB) assay suitable for the determination of free estradiol-17B levels in plasma of pregnant women" that uses human late-pregnancy plasma (HLPP) as the cource of binding protein. Methods, materials, results, and method evaluation are presented. "The method is rapid enough that it might be of clinical use in assessing placental function in high-risk pregnancies and gives reproducible results which are similar to those that have been obtained with more time-consuming techniques." Estriol could also be measured by this method.

934. Sybulski, S., and Tremblay, P.C.: "Placental Glycogen Content and Utilization in Vitro in Intrauterine Fetal Malnutrition," *American Journal of Obstetrics and Gynecology*, 103:257-261, Jan. 15, 1969.

Thirty-four placentas from uncomplicated pregnancies resulting in healthy babies, six placentas from cases of toxemia, and 13 placentas from "pregnancies complicated by intrauterine fetal malnutrition" were examined with respect to "glycogen content and rate of glycogen utilization in vitro." Methods are described. Glycogen content values were not significantly different in the three groups, but the cases of intrauterine fetal malnutrition had a significantly lower total placental glycogen content. No statistically significant difference could be found among the rates of glycogen utilization but the intrauterine fetal malnutrition group showed a 37% greater rate of utilization on the average. Normal utilization was seen in the toxemia cases. Physiological implications are discussed.

935. "Symposium: The Role of Sensory Experience in the Maturation of Sensorimotor Function in Early Infancy," *Clinical Proceedings of the Children's Hospital of the District of Columbia*, 22:247-284, Oct., 1966.

In this issue of this journal are contained four papers presented at the Postgraduate Course in Pediatric Neurology that was given at Children's Hospital in March of 1966. Dr. Richmond S. Paine, in the first paper, presents "Evidence from Clinical and Electrophysiological Studies and from Conditioning Experiments." Dr. Ann B. Barnet, in the second paper, discusses "Visual Responses in Infancy and Their Relation to Early Visual Experience." "Clinical Applications" are considered by Dr. Mark N. Ozer in the third paper, and Dr. Reginald S. Lourie describes "The Role of Individual Constitutional Differences in Early Personality Development" in the fourth paper.

936. "Symposium on Skeletal Muscle Hypertonia," *Clinical Pharmacology and Therapeutics*, 5:799-966, Nov.-Dec., 1964.

Published here are the 20 papers presented at this Symposium, many of which deal with aspects of the assessment, the measurement, and the treatment of hypertonia.

937. Tardieu, G.; Tardieu, C.; Hariga, J.; and Gagnard, L.: "Treatment of Spasticity by Injection of Dilute Alcohol at the Motor Point or by Epidural Route: Clinical Extension of an Experiment on the Decerebrate Cat," *Developmental Medicine and Child Neurology*, 10:555-568, Oct., 1968.

After reporting favorable results in attempts to suppress the myotatic reflex by injection of dilute alcohol in decerebrate cats, the authors present a method used to obtain the same result in the treatment of cerebral palsy. A method of diagnosis, used to determine which cases will benefit from the treatment, is described. In selected cases when 45% alcohol was injected "at the motor point of the muscle or by epidural way," the myotatic tonic reflex was suppressed "for several months and even up to 2 and 3 years." The procedure is felt to be safe.

938. Tatelbaum, Robert C., and Rosen, Mortimer G.: "Applicability and Acceptability of Fetal Scalp Blood Sampling Technic," *Obstetrics and Gynecology*, 32:290-292, Aug., 1968.

Methods used and results obtained from usage of this technic with 86 obstetric patients at Strong Memorial Hospital in Rochester, New York are presented. The procedure was evaluated according to five criteria which must be fulfilled "for a method to be useful in monitoring the fetus during labor." It must be: "(1) harmless; (2) easily performed; (3) useful during the greater part of labor; (4) able to give continuous, accurate information; and (5) convenient to perform." It was felt that this final prerequisite (5) is not fulfilled by fetal scalp blood sampling, and the inconvenience of the method "has severely limited its clinical applicability at our medical center."

939. Taylor, Don. *Staff Training in a Public School Setting*. Austin, Texas: University of Texas, Program for Staff Training of Exemplary Early Childhood Centers for Handicapped Children, [1971]. 62 pp. (Staff Training Prototype Series Vol. II, No. 8.)

Explained is the staff training program at the Chapel Hill Preschool Project for Developmentally Handicapped Children in Chapel Hill, North Carolina. The program is designed to train not only the immediate staff but also the families of the children, the students who gain experience in the project, the volunteers, the personnel of the public school systems, the community as a whole, and the "policy makers within the state." The five components of the "conceptual model" of the training program are described and individually discussed "in relation to the immediate staff." These five are (1) "Needs assessment and the establishment of Training Objectives," (2) "the Organization of Training," (3) "the Content of Training," (4) "the Methods of Training," and (5) "the Trainers." Four separately explained components make up the organizational framework of the training program: (1) "a pre-service program," (2) "weekly in-service staff training conferences," (3) "systematic on the job supervision," and (4) "built-in opportunities for intra- and inter-project observations." On the final three pages "a brief narrative description and pictorial view of the total staff training" in the project is presented. Many of the forms used are included.

940. Taylor, Paul M.; Bright, Nancy H.; Birchard, Edna L.; Derinoz, Mahmut N.; and Watson, Doris W.: "The Effects of Race, Weight Loss, and the Time of Clamping of the Umbilical Cord on Neonatal Bilirubinemia," *Biologia Neonatorum*, 5:299-318, 1963.

Serum bilirubin levels were obtained in 142 full term and 173 premature infants on the third day of life. On some of these infants the umbilical cord had been clamped immediately at birth and in some the clamping had been delayed between 1-3 minutes. Inverse relationships between serum bilirubin levels and both birth weight and gestational age were revealed. White premature infants had higher values than did colored prematures. "Late clamped" prematures generally had higher values than did the "early clamped" prematures. Values were directly correlated with weight loss during the fourth day for both colored and white infants. Results also suggested an association between prolonged rupture of the membranes and hyperbilirubinemia. Factors found to be unrelated to bilirubin values are listed, and possible explanations for the relationships found are discussed.

941. Telford, Ira Rockwood, and Woodruff, Caroline Silence: "Prophylactic Value of Antioxidants and Related Compounds in Prenatal Anoxia," *Biologia Neonatorum*, 5:379-389, 1963.

Over 500 primigravida rats were divided into experimental and control groups. The experimentals were subdivided and given 28 various compounds. All rats were killed by 21 minutes of anoxia at term and delivered of their young by Caesarean Section. Those young who survived were reared with foster mothers, tested in a Skinner box after six months, and sacrificed for histologic study. Nineteen of the 28 antioxidants and related compounds "significantly improved the survival rate." Ascorbic acid, phenothiazine, alpha tocopherol, and glucose are commented on in more detail as to their mode of action, cite of action, and possible value in preventing lesions resulting from neonatal anoxia. Other factors related to survival are also discussed.

942. ten Berge, B.S.: "The Influence of the Placenta on Cerebral Injuries," *Cerebral Palsy Bulletin*, 3:323-331, 1961.

The results of a study by Prechtl, in which infants resulting from complicated pregnancies or deliveries were followed, is reported to emphasize the need for increased interest by obstetricians in hypoxia and "the anatomy and function of the placenta, and especially the foetal circulation." Current research on the later is reported and the value of serial urinary estriol determinations to measure placental insufficiency and to aid in determining the proper time to induce labor is stated. Recommendations to improve the safety of the birth process are made.

943. Terplan, K.L.: "Histopathologic Brain Changes in 1152 Cases of the Perinatal and Early Infancy Period," *Biologia Neonatorum*, 11:348-366, 1967.

The CNS of 1152 non-selected infants who had died perinatally or in early infancy were microscopically examined. Methods are described. Two groups were formed: (1) Stillborns, immatures, prematures, and full-terms up to 14 days old (936 cases), and (2) infants age 15 days to 3 months (216 cases). Detailed histopathologic findings are reported and are summarized as showing "significantly more frequent neuronal hypoxic changes in the cerebral cortex of the full term as compared to the premature, and a greater incidence of intraventricular and parenchymatous hemorrhages, and necrosis in the periventricular white matter of the premature." Also noted was "a frequent lack in correlation between clinical symptoms of neurologic disorders and histopathologic findings in the brain."

944. Thomas, Andre; Chesni, Yves; and Dargassies, S. Saint-Anne. *The Neurological Examination of the Infant*. London: Spastics Society in association with Heineman Medical Books, 1960. 50 pp. (Little Club Clinics in Developmental Medicine, No. 1.)

Described in this booklet are techniques used and typical responses illicited in the neurological examination of both the newborn and the older infant. Many illustrations of positions and reactions are included.

945. Thompson, Horace E.; Holmes, Joseph H.; Gottesfled, Kenneth R.; and Taylor, E. Stewart: "Fetal Development as Determined by Ultrasonic Pulse Echo Techniques," *American Journal of Obstetrics and Gynecology*, 92:44-52, May 1, 1965.

Previous work in this area and the equipment used in these techniques are briefly described. Studies in which ultrasonic measurements were made in utero are reported. Also presented are formulas used to estimate fetal weight from ultrasonic measurements of the chest circumference and the biparietal diameter of the head. When these two measurements were combined, it was usually possible to estimate fetal weight to within 400 grams. Uses for ultrasonic techniques are mentioned and "Discussion" follows the article.

946. Thompson, Horace E., and Makowski, Edgar L.: "Estimation of Birth Weight and Gestational Age," *Obstetrics and Gynecology*, 37:44-47, Jan., 1971.

The biparietal and anteroposterior chest diameters were measured in 1079 neonates, and "these measurements were compared with fetal weight and gestational age." Results of estimating birth weight and gestational age from the biparietal diameter alone, from the anteroposterior chest diameter alone, and from both of these measurements are presented along with the formulas and graphs used in the estimation. "A clinically significant fetal weight estimate can be made from the biparietal and anteroposterior chest diameters. Estimation of gestational age by this method, however, is not significantly better than the estimation made from menstrual history alone."

947. Thompson, W.; Lappin, T.R.J.; and Elder, G. Elizabeth: "Liquor Volume by Direct Spectrophotometric Determination of Injected PAH," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 78:341-344, Apr., 1971.

"A simple and more rapid method" than the diazo method for estimating the volume of amniotic fluid is presented. "PAH (sodium aminohippurate) is injected into the amniotic cavity and after complete mixing its concentration in the liquor is determined" by spectrophotometric measurement. The advantage of simplicity is stressed.

948. Thomson, A.M.; Billewicz, W.Z.; and Hytten, F.E.: "The Assessment of Fetal Growth," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 75:903-916, Sept., 1968.

Fifty-two thousand and four births that took place between 1948 to 1964 in Aberdeen, Scotland were analyzed with respect to gestational age, birth weight, sex, pregnancy number, maternal size, and social class. Fetal growth standards were derived on the basis of results and are presented.

949. Thomson, Angus M.: "The Evaluation of Human Growth Patterns; Nutrition, Growth, and Mental Development," *American Journal of Disease of Children*, 120:398-403, Nov., 1970.

The author states his belief "that retardation of growth may or may not have permanent consequences, depending on its timing, severity, and duration." Relevant studies on growth and development and lack of such during the fetal, neonatal, infantile, preschool, school, and adolescent periods are discussed. It is suggested that "there may be three critical periods" of growth during which times permanent effects may result from growth interruptions. The critical periods are felt to be the late fetal period, from age 6 months to 2 years, and adolescence. Healthy parents and a "healthy society" will do much to decrease impaired growth and development.

950. Thorn, Ingrid. *Cerebral Symptoms in the Newborn; Diagnostic and Prognostic Significance of Symptoms of Presumed Cerebral Origin.* Copenhagen: Munksgaard, 1969. 174 pp.

After a detailed review of the literature on cerebral symptoms in newborn infants, a description is given of the undertaken study, the report of which is the object of this volume. Data were obtained from records of 291 children who were born during the period 1946 to 1955, and who had been admitted to the Department of Paediatrics at Copenhagen County Hospital, during the neonatal period because of suggested cerebral damage. Follow-up examinations were conducted on 95% of these children from 1958 to 1959. The results at follow-up are reported, and the diagnostic significance of the neonatal symptoms is reported. The significance of the neonatal symptoms for the prognosis of immediate survival as well as the long term prognosis is discussed, and the role of etiological factors as related to the diagnostic and prognostic value of the neonatal symptoms is presented. The high rate of prematurity is discussed, and sex differences are briefly mentioned.

951. Thorn, Ingrid: "Primidone and Chlordiazepoxide in Cerebral Palsy," *Developmental Medicine and Child Neurology*, 4:325-327, June, 1962.

Reported is a trial usage of the drug chlordiazepoxide in 50 cases of cerebral palsy. The age range of the children was from one to fifteen years. The following results were obtained: "(1) a reduction in muscular hypertonicity, (2) improved performance of voluntary movements, (3) some reduction in hyperkinetic movements, (4) less disturbance of sleep by muscular activity and crying, but (5) no definite effect on emotional reactions." The most favorable results were in patients with athetosis. Dosages and side-effects are discussed.

952. Thysen, Benjamin; Meyer, Claude J.; and, Gatz, Michael: "Semiautomated Assay for Rapid Determination of Estrogens in Late-Pregnancy Urine," *Obstetrics and Gynecology*, 63:799-803, Nov., 1970.

A "convenient, rapid, and reproducible" system is described that enables mass screening in late pregnancy to evaluate fetal health.

953. Till, Dorothy: "The Uses of Reflexes in the Restoration of Normal Movement," *Physiotherapy*, 55:2-8, Jan. 10, 1969.

Numerous "excitatory and inhibiting reflexes that can be used to strengthen muscles or mobilize joints" are described.

954. Tizard, J.: "The Experimental Approach to the Treatment and Upbringing of Handicapped Children," *Developmental Medicine and Child Neurology*, 8:310-321, June, 1966.

The experimental approach is needed in organizing services for mentally and physically handicapped children. The shortage of services, the current expansion of services, and the development of experimental methods in psychology and sociology provide an opportunity to utilize this approach. Pilot studies or controlled clinical trials are widely used in drug treatment. They should also be conducted before implementing new methods and services for chronically disabled children. Problems presented by the experimental approach to diagnosis, treatment, and evaluation of treatment are discussed.

955. Tizard, John Peter Mills: "After Effects of Neonatal Brain Damage," in *Child Care in Health and Disease*, edited by Albert Dorfman. Chicago: Year Book Medical Publishers, 1968. pp. 183-198.

The author in this article is concerned with the neonatal illnesses that are related to brain damage. The sick newborn is emphasized and the problems of evaluating the sick infant are discussed. Studies of hypoxia and hypoglycemia, conducted by the author and his colleagues, are presented to emphasize the need for much intensive study into the relationship between neonatal illness and subsequent brain damage.

956. Togut, Myra R.; Allen, John E.; and Lelchuck, Louis: "A Psychological Exploration of the Nonorganic Failure-to-Thrive Syndrome," *Developmental Medicine and Child Neurology*, 11:601-607, Oct., 1969.

This "Syndrome" is defined and the relevant literature is briefly reviewed. The results of a study of nine infants, admitted to the hospital for growth failure and in whom no organic disorders were demonstrated, are reported. The findings with respect to maternal and family history, inpatient evaluation, and psychological evaluation of the mothers are described. Listed in the summary are three elements which need to be identified in diagnosing this "Syndrome."

957. Torres, Fernando, and Blaw, Michael E.: "Longitudinal EEG-Clinical Correlations in Children from Birth to 4 Years of Age," *Pediatrics*, 41:945-954, May, 1968.

One hundred and thirty children who had had an EEG as neonates were followed. EEG's were repeated at ages, 4, 8, and 12 months "and then at yearly intervals." Regular clinical examinations, including neurological examinations, were conducted as described. At the time of this report all the children were at least four years of age. The terms "clinical abnormalities" and "EEG abnormalities" are defined as they are used in this study. Twenty-three children had "clinical abnormalities," and 30 "children had EEG characteristics which are frequently considered abnormal in their neonatal period." Relations between the two groups are presented. It was felt that the results confirmed previously "that the neonatal EEG has no significant prognostic value for the subsequent clinical development of children."

958. Touwen, Bert C.L.: "A Study on the Development of Some Motor Phenomena in Infancy," *Developmental Medicine and Child Neurology*, 13:435-446, Aug., 1971.

The motor development of 50 healthy infants was studied from two weeks after birth "until they walked unsupported." A total of 816 examinations of the babies was conducted with the technique used and results concerning the neonatal palmar grasp, the moro response, locomotion in the prone position, voluntary grasping, development of sitting, sitting, and walking unsupported described. Three conclusions are presented. "The results show very little interrelationship between the developmental courses of the different items," making evident the need for comprehensive assessment in the evaluation of motor development.

959. Towbin, Abraham: "Central Nervous System Damage in the Human Fetus and Newborn Infant," *American Journal of Diseases of Children*, 119:529-542, June, 1970.

The author reviews aspects of his work on CNS damage in the fetal and neonatal periods. Such damage is of clinical concern because of the resulting neonatal mortality, cerebral palsy, mental retardation, etc. The results of a clinical-pathological study of autopsies from over 600 stillborn and live born infants, 78% of whom were premature, are presented. It was found that mechanical trauma and hypoxia were the two main causes of CNS lesions. Four principle types of CNS damage were found to appear in the fetus and newborn: (1) "subdural hemorrhage"; (2) "spinal cord and brain stem damage"; (3) "hypoxic cerebral periventricular (infractional) damage"; and (4) "cortical cerebral infarctional damage". Features of each of these types are described. It is felt that the majority of CNS lesions are of prenatal origin "and may be well advanced prior to labor." The "two patterns of cerebral damage" seen in cerebral palsy and mental retardation are described briefly. When these are correlated with patterns of damage seen in the newborn, "a formula emerges for defining the time of incurrence of the cerebral damage." This view and its implications are briefly discussed.

960. Towbin, Abraham: "Cerebral Hypoxic Damage in Fetus and Newborn," *Archives of Neurology*, (Chicago) 20:35-43, Jan., 1969.

A series of 600 cases of stillborn fetuses and neonatal deaths were histopathologically studied by using the technique of whole-brain serial section. Two basic patterns of hypoxic cerebral damage were seen. In the fetuses and newborn infants delivered between the 25th and 35th week of gestation the lesions were largely located in the periventricular region of the brain; however, in the mature infants the cerebral damage was found to be mainly cortical. The role of these two basic types of neonatal cerebral hypoxic damage is discussed in relation to the development of corresponding forms of chronic cerebral damage found in cerebral palsy and mental retardation.

961. Towbin, Abraham: "Organic Causes of Minimal Brain Dysfunction: Perinatal Origin of Minimal Cerebral Lesions," *Journal of the American Medical Association*, 217:1207-1214, Aug. 30. 1971.

The syndrome of minimal brain dysfunction is described as one of the possible sequelae of neonatal brain damage as are findings from neuropathological studies of "over 600 neonatal cases." The four principle forms of CNS damage found in the human fetus and newborn are listed and described. Hypoxia is singled-out as being a major causal factor in CNS disorders. Its varied neurological effects, the possible forms of damage (deep and cortical) it can cause, and the relationship of gestational age to these forms are considered. "In the premature, the damage affects primarily periventricular deposits of germinal tissue. At term, the loss is mainly in the cortex." Also listed and discussed are the three stages through which "the development of cerebral infarction in the perinatal period evolves" and "specific biologic factors" which influence "this predilection for localization of hypoxic cerebral damage." The characteristics of the acute and chronic lesions are explained and compared. "The conclusion is inescapable that lesser hypoxic lesions occurring in the fetal-neonatal period are correspondingly responsible for the appearance later of lesser patterns of clinical disability, for varied subtle forms of attenuated, distorted CNS function." Characteristics of these "lesser hypoxic lesions," their incidence, and their effects are presented.

962. Towell, Molly E.: "The Influence of Labor on the Fetus and the Newborn," *Pediatric Clinics of North America*, 13:575-598, Aug., 1966.

Maternal and fetal "hemodynamic changes" that occur during labor are described, and the term, asphyxia, is defined and discussed in relation to its occurrence during labor and delivery. Saling's technique of fetal blood sampling during labor is presented as a means of determining fetal acid-base status. Also considered are the maternal, placental, fetal, and neonatal factors that may cause fetal and neonatal asphyxia. The techniques of relieving fetal distress by the "administration of oxygenand infusion of glucose to the mother" are explained. Other influences on the fetus and newborn occurring during labor that are considered include the administration of pain relief to the mother and the "mechanical effects of labor." Methods used to evaluate the condition of the fetus and neonate are briefly mentioned, and vaginal delivery is compared to abdominal delivery with regard to the occurrence of mortality and morbidity.

963. "Transfusions Suggested for Neonatal Disorders," *Journal of the American Medical Association*, 211:1459-1460, Mar. 2, 1970.

Researchers at the University of Pennsylvania School of Medicine report that exchange transfusions may be of value in treating infants with respiratory distress syndrome. The rationale, the results with two infants, and future plans are explained.

964. Trolle, Dyre: "Decrease of Total Serum-Bilirubin Concentration in Newborn Infants after Phenobarbitone Treatment," *Lancet*, 2:705-708, Sept. 28, 1968.

In a controlled study, phenobarbitone was administered to 808 neonates with birth weights over 2,500 g. by using one of the following methods: (1) given only to the pregnant women (117 patients), (2) given only to the infant (452 patients), and (3) given to both the pregnant women and the infants (239 patients). Procedures and results for each group are presented. The latter method of treatment (3) "proved the most effective - the decrease in infants with 13 mg. or more of bilirubin per 100 ml. serum was 94% and the highest value among the infants treated in this way was 13.2 mg. per 100 ml." The safety and action of phenobarbitone are discussed.

965. Trombly, Thelma: "Linguistic Concepts and the Cerebral Palsied Child," *Cerebral Palsy Journal*, 29:7-8, Mar.-Apr., 1968.

The terms "speech" and "language" are differentiated in this article. Speech is but one facet of language. The young child with cerebral palsy deviates from the normal pattern of language development not only because of his physical disabilities, but also because of his limited social environment. He must constantly be stimulated by the speech of others, by visual experience, and by toys, etc., to increase his potential for acquiring language.

966. Twitchell, Thomas E.: "The Neurological Examination in Infantile Cerebral Palsy," *Developmental Medicine and Child Neurology*, 5:271-278, June, 1963.

Additional tests which the author and his associates have added to the usual neurological examination in order to determine more precisely the physiological nature of the motor deficit in cases of infantile cerebral palsy are described. Included are the tonic neck, labyrinthine, and righting reflexes, the positive supporting and contact placing reactions, the traction and avoiding responses, the grasp reflex, and the contact reaction of the lips.

967. Twitchell, Thomas E.: "Sensation and the Motor Deficit in Cerebral Palsy," *Clinical Orthopaedics and Related Research*, 46:55-61, May-June, 1966.

The importance of considering the sensory deficits as well as the motor in cerebral palsied patients is stressed. Sensory disturbances found in the hands of cerebral palsied are described with several pertinent studies mentioned. Also considered are the relationship between movement and sensation and the relationship between the motor and the sensory deficits in cerebral palsy.

968. Twitchell, Thomas E.: "Variations and Abnormalities of Motor Development." Adapted from a paper presented at the Symposium on The Child with Central Nervous System Deficit, 1964. *Physical Therapy*, 45:424-430, May, 1965.

Several variations in motor development that are not related to CNS abnormalities are described, and the fact that no clear division exists between normal and abnormal motor development is discussed. Considered in detail are the characteristics of the motor deficit in cerebral palsy. Individually described are the defects in resting posture, prehension, sitting, standing, gait, and speech, and the presence of involuntary movements (athetosis), abnormalities and deformities of posture, and passive movement resistance (spasticity). The author feels that the classifications of cerebral palsy are physiologically artificial and that treatment should be individually rather than class oriented.

969. Twitchell, Thomas E., and Ehrenreich, Donald L.: "The Plantar Response in Infantile Cerebral Palsy," *Developmental Medicine and Child Neurology*, 4:602-611, Dec., 1962.

In order to study physiologically the plantar response in children having infantile cerebral palsy, the response was elicited in various areas of the sole of the foot by using both light and firm stimuli in 42 children having various types of congenital cerebral palsy. It was found that "both flexor and extensor plantar responses could be obtained, the result obtained depending on the region of the foot stimulated and on the quality of stimulation." The physiological mechanisms determining these reactions were defined. The grasp reflex and the proprioceptive positive supporting reaction caused plantar flexion, and the avoiding response and the nociceptive flexion reaction caused plantar extension. The relation of these responses to gait and "some aspects of the plantar reactions in the normal infant" are considered. Other work in the area is reviewed.

970. Ulstrom, Robert A., and Eisenklam, Eric: "The Enterohepatic Shunting of Bilirubin in the Newborn Infant. I. Use of Oral Activated Charcoal to Reduce Normal Serum Bilirubin," *Journal of Pediatrics*, 65:27-37, July, 1964.

Two series of experiments involving normal babies and designed to determine the effect of "orally administered activated charcoal" on neonatal serum bilirubin levels are described. In the first series, 15 test infants were given the charcoal followed by glucose water initially at 12 hours of age while the 17 controls received only glucose water. No difference in bilirubin values was noted. In the second series the test infants received the charcoal followed by the glucose water at four hours of age initially while the controls were given only glucose water. "Significantly less bilirubinemia" occurred in the test infants. Rationale behind the study, selection methods, factors related to the charcoal, lab methods, data interpretation, results, and implications are presented.

971. Underhill, Rosemary A.; Beazley, John M.; and Campbell, Stuart: "Comparison of Ultrasound Cephalometry, Radiology, and Liquor Studies in Patients with Unknown Confinement Dates," *British Medical Journal*, 3:736-738, Sept. 25, 1971.

A study is described in which ultrasound cephalometry, radiology, and liquor amnii tests were employed to estimate fetal maturity in a group of patients in whom the estimated date of confinement was unknown. The results of the three methods were compared for accuracy. "The best prediction was given by ultrasound cephalometry. Liquor studies were least helpful."

972. United Cerebral Palsy Associations. *Realistic Educational Planning for Children with Cerebral Palsy; Pre-School Level.* New York: U.C.P. Associations, 1967. 39 pp.

Educational philosophy and educational classification concerning the young cerebral palsy child are outlined. The needs of such a child in infancy, at the nursery school level, and in kindergarten are considered. For each of these three age levels, evaluation techniques are suggested and the developmental aspects of physical activity, communication, emotional and social adjustment, and mental development are discussed.

973. United Cerebral Palsy of New York City. *Early Education of the Multi-Handicapped Child.* New York City: United Cerebral Palsy Associations, 1971. 35 pp.

In this booklet is briefly described in words and photographs the demonstration program for the "early education of the multi-handicapped child" of United Cerebral Palsy of New York City, Inc. The project is financed by the Office of Education under the Handicapped Children's Early Education Program. The objectives of the project are listed, and the inter-disciplinary staff team is described. Various facets of the program are explained including physical therapy, nutrition, toilet training, etc. Also explained and discussed are means of parental involvement, the goals of the curriculum, the problem of transportation, the phases in the program through which the child progresses, the accomplishments of the project to date, and the plans for the future. Much equipment is pictured, and a floor plan of the facility and a drawing of the "proposed Brooklyn Rehabilitation Campus" are included.

974. Usher, Robert; McLean, Frances; and, Scott, Kenneth E.: "Judgment of Fetal Age. II. Clinical Significance of Gestational Age and an Objective Method for Its Assessment," *Pediatric Clinic of North America*, 13:835-848, Aug., 1966. (Series: For I see #555, III see #685.)

"The relation between gestational age, birth weight and disease pattern" was studied in 10,938 consecutive, live-born infants of over 1000 gm birth weight, and the need to determine gestational age accurately, in order "to distinguish true premature infants who are at high risk from respiratory distress syndrome, from underweight full-term (fetal malnutrition) infants who are prone to hypoglycemia, congenital anomalies and the sequelae of intrauterine asphyxia" etc. was shown. Methods used to assess gestational age are evaluated, and a method, found to be simple and accurate, "is presented by which it is possible to determine whether newborn infants are premature (36 weeks and less), borderline premature (37 to 38 weeks) or full term (39 weeks or more)." Five listed physical features of the neonate that "differentiate during the last month of pregnancy and are unaffected by growth failure" are examined. Results of using the method are reported.

975. U. S. Public Health Service, *Cerebral Palsy*, Washington, D.C.: U.S. Government Printing office, 1967. 11 pp. (PHS Publication No. 1671. Research Profile No. 13.)

The condition of cerebral palsy, its causes, approaches to research, advances made in research, treatment, and the "outlook" for research are considered.

976. U.S. Public Health Service, *Summary of Progress in Childhood Disorders of the Brain and Nervous System*, Washington, D.C.: U.S. Government Printing Office, 1965. 34 pp. (PHS Publication No. 1370. Research Profile No. 11.)

Divided into three Parts, this booklet contains a review of research sponsored by the National Institute of Neurological Diseases and Blindness. Part I contains a description of the Collaborative Perinatal Research Study, including "useful findings" from the Study; Part II is concerned with research in cerebral palsy; and Part III with research in mental retardation.

977. Vahlquist, B.; Engsner, G.; and Sjogren, Irene: "Malnutrition and Size of the Cerebral Ventricles," *Acta Paediatrics Scandinavica*, 60:533-539, Sept., 1971.

Eighteen children with nutritional marasmus, ages 3.5 to 22 months; 10 children with kwashiorkor, ages 18 to 26 months; and 38 healthy control children, ages 2 weeks to 29 months were examined physically and echoencephalographically to determine the size of the cerebral ventricles. All children were Ethiopian. Methods are described, and results are reported concerning body weight, head circumference, and width of lateral ventricles in relation to age. Echoencephalographic examination of the size of the cerebral ventricles "showed a moderate but significant increase in children with kwashiorkor, examined up to 3-4 weeks after admission, whereas children with marasmus showed no deviation from the normal."

978. Valdes, Orestes S.; Maurer, Harold M.; Shumway, Clare N.; Draper, David A.; and Hossaini, Ali N.: "Controlled Clinical Trial of Phenobarbital and/or Light in Reducing Neonatal Hyperbilirubinemia in a Predominantly Negro Population," *Journal of Pediatrics*, 79:1015-1017, Dec., 1971.

Four treatment groups of predominantly Negro, less than one day old, low birth weight infants were studied. Group 1 received described doses of phenobarbital for five days (23); Group 2 was given continuous phototherapy as described for four days (19); Group 3 was given both phenobarbital and phototherapy (18); and Group 4 was given no therapy (15). Phototherapy was found to be more effective than oral phenobarbital in the lowering of serum bilirubin concentrations in this population of infants, but "the phenobarbital-treated group maintained a significantly lower mean serum bilirubin concentration that the control group on days 3, 4, and 5." Combining these treatment methods did not produce better results than phototherapy alone.

979. van den Berg, Bea J., and Yerushalmy, J.: "Studies on Convulsive Disorders in Young Children. I. Incidence of Febrile and Nonfebrile Convulsions by Age and Other Factors," *Pediatric Research*, 3:298-304, July, 1969.

Much data was available on a cohort of 18,500 children born in the Kaiser Foundation Hospital in Oakland, California. "By five years of age, two percent of the 18,500 children had had one or more febrile convulsions; one percent had had nonfebrile convulsions." These children were studied in detail with findings reported with regard to the age at which the first seizure occurred, sex, birth weight and gestational age, the incidence of multiple episodes, the incidence of "severe congenital anomalies," and mortality. "Severe congenital anomalies" were present in 31% of the nonfebrile group and in 7% of the febrile group. Of the nonfebrile group 9.7% had cerebral palsy and 15.9% were mentally retarded with 5% of the group having both conditions."

980. van den Berg, Bea J., and Yerushalmy, J.: "The Relationship of the Rate of Intrauterine Growth of Infants of Low Birth Weight to Mortality, Morbidity, and Congenital Anomalies," *Journal of Pediatrics*, 69:531-545, Oct., 1966.

A method is described by which "367 single white low-birth-weight infants in the Child Health and Development Studies in Oakland, California, and 20,408 such infants in New York City" were divided into four groups which were of identical birth weight and sex composition but were different with respect to length of gestation. The purpose was to provide for study four groups of infants with differing rates of intrauterine growth (IUG). Presented are the results revealed when the four groups were examined and compared concerning mortality rates until two years of age, congenital anomalies, the condition of the infants immediately after birth and in the neonatal period, and their "subsequent health and development." Findings are listed in a "Summary."

981. Van Praagh, Ian G.L., and Tovell, Harold M.M.: "Cesarean Section for Fetal Distress," *Obstetrics and Gynecology*, 31:674-681, May, 1968.

A study was conducted of 192 cases of cesarean section for fetal distress and the 194 offspring with much data presented. Thirty-five of these infants were severely depressed by 1 minute Apgar score, and 18 of these died perinatally. The most significant signs of fetal distress, exclusive of the breech presentation cases, were "the combination of fetal bradycardia and passage of thick meconium." "Prematurity, major congenital defects, and severe anoxic conditions were the common etiologic factors in the perinatal death group and were conspicuously absent in the large group of mildly depressed and unaffected neonates."

982. Van Praagh, Richard: "Diagnosis of Kernicterus in the Neonatal Period," *Pediatrics*, 28:870-876, Dec., 1961.

Thirty-one infants from a group of 882 infants with hemolytic disease developed kernicterus and were studied "to assess the accuracy of neonatal neurologic evaluations concerning the presence or absence of kernicterus and,...to ascertain the sources of diagnostic uncertainty and error in the neonatal period." In the neonatal period kernicterus was firmly diagnosed in 20 of the 31 cases because of marked to moderate spasticity, was suspected in six of the 31 because of mild spasticity, and was not suspected in five cases because no spasticity was observed in the neonatal period. These latter five cases are described as are the three distinct clinical phases seen during the neonatal period and the fourth phase seen after the neonatal period in the infants with kernicterus. Spasticity was found to be a very reliable indicator of kernicterus. "The true absence of any spasticity throughout the first week of life appeared to indicate with great reliability in the neonatal period that kernicterus had not occurred."

983. Vassella, F.: "Organization of Measures for Early Detection and Treatment of Cerebral Palsy in Berne," *Developmental Medicine and Child Neurology*, 8:195-197, Apr., 1966.

Increased education of medical personnel and identification of potential cases of cerebral palsy in obstetrical clinics will aid in the early detection of cerebral palsy. Methods employed at the University of Berne to achieve these two goals are described.

984. Vassella, F., and Karlsson, B.: "Asymmetric Tonic Neck Reflex; A Review of the Literature and a Study of Its Presence in the Neonatal Period," *Developmental Medicine and Child Neurology*, 4:363-369, Aug., 1962.

This reflex and its clinical significance in adults, children, infants, and neonates are bibliographically reviewed. In order to examine "the incidence and consistency of tonic neck reflexes in the newborn period," a study of 108 normal newborns was undertaken. Spontaneous and passively elicited tonic reflex patterns were noted with elicitation methods described. Consistency of the elicitation of the reflex was revealed to be an important factor. True asymmetric tonic neck reflexes were concluded to be rare in the neonatal period. In this sample only nine newborns demonstrated this reflex, and all were considered normal at follow-up.

985. Vehrs, Sidney, and Baum, David: "A Test for Visual Responses in the Newborn," *Developmental Medicine and Child Neurology*, 12:772-774, Dec., 1970.

The simple method used and results obtained when using a bright red flashing light to assess the visual responsiveness in newborn infants is reported. This method proved to be more efficient than use of a bright red ball or diffuse daylight.

986. Vest, M.; Signer, E.; Weisser, K.; and Olafsson, A.: "A Double Blind Study of the Effect of Phenobarbitone on Neonatal Hyperbilirubinemia and Frequency of Exchange Transfusion," *Acta Paediatrica Scandinavica*, 59:681-684, Nov., 1970.

Studied was the effect that phenobarbitone had on serum bilirubin concentration and the frequency of exchange transfusion in newborn infants. Infants admitted to the hospital within 24 hours of delivery because of prematurity or other reasons were randomly assigned to receive either phenobarbitone (56 infants), or a placebo (60 infants). Methods of injection are described. Results showed (1) serum bilirubin levels to be significantly lower in the treated group from the 4th day, and (2) 11 exchange transfusions were needed in the untreated group. This difference was significant statistically. No behavioral effects from the phenobarbitone were detected. Implications are discussed.

987. Von Werssowetz, Odon F., and Parker, Linda: "Flexion Insert for Wheelchairs," *American Journal of Occupational Therapy*, 15:210-211, Sept.-Oct., 1961.

Such an insert, used in the wheelchairs of cerebral palsied children, is pictured and described. This device "gives the child more control of his head and arms by inhibiting the extension pattern and has the additional asset of eliminating supplemental equipment such as straps, crotch posts, braces, etc., usually worn or attached to these children to force them to sit adequately."

988. Vuchovich, D.M.: Haimowitz, Natalia; Bowers, N.D.; Cosbey, June; and Hsia, D. Yi-Yung: "The Influence of Serum Bilirubin Levels Upon the Ultimate Development of Low Birthweight Infants," *Journal of Mental Deficiency Research*, 9:51-60, Mar., 1965.

Sixty-one infants, who weighed 4 1/2 pounds or less at birth and in whom serum bilirubin levels had been determined as neonates, were followed for a four year period. "Each infant was scored for (1) peak bilirubin level, (2) weight at birth, (3) maternal age, (4) developmental examination at four months, (5) developmental examination at one year, (6) Vineland Maturity Scale at three years, (7) Stanford-Binet at four years, (8) neurological examination at four years, and (9) mental-emotional adaptability at four years." Data on and correlations on the comparison of those children having had peak bilirubin above 18 mg% with those having had peak levels below that point are presented. "It would appear that if the infants survive the neonatal period without gross evidence of kernicterus, the more jaundiced infants behave in much the same manner as those less jaundiced."

989. Wagner, Marsden G.: "Observations on the Newborn Dysmature Infant and His Development during the First 9 Months," *Journal of Pediatrics*, 63:335-338, Aug., 1963.

Preliminary results from a study of dysmature infants are presented. Tables present data on the mothers of eight dysmatures and on the infants' conditions at birth, neurologic test results at age 24 hours, physical examination at 9 months, and the uncorrected and gestationally corrected developmental test quotients. "Modifications of methodology" needed to aid in the study of such infants are discussed.

990. Wagner, Marsden G., and Arndt, Rolf: "Postmaturity as an Etiological Factor in 124 Cases of Neurologically Handicapped Children," in *Studies in Infancy*, based on a study group held at Oxford, September, 1966, edited by Ronald MacKeith and Martin Bax. London: Spastic International Medical Publication in association with Heinemann Medical Books, 1968. pp. 89-93. (Clinics in Developmental Medicine, No. 27.)

A study was conducted on 124 patients at the School for Cerebral Palsied Children of Southern California to investigate the frequency of extended pregnancies among children with cerebral palsy and "generalized neurological deficiency." The incidence of postmaturity clearly exceeded the natural incidence. The authors emphasize the need for greater consideration of postmaturity as a factor in producing neurologically handicapped infants, urge that a more thorough study be conducted, and suggest usage of the preventive measure of labor induction should further studies yield the same results.

991. Walker, James: "Obstetric Viewpoint on Cerebral Palsy," *Cerebral Palsy Bulletin*, 2:61-67, 1960.

The role of the obstetrician in the study of pregnancy wastage is discussed. Individually described are the etiological factors in cerebral palsy that occur during pregnancy and labor. The importance of "clinical obstetrical documentation" in cerebral palsy and reasons why it is often lacking are considered. Also listed are steps the obstetrician can take to improve his position concerning cerebral palsy.

992. Walker, W.: "Role of Liquor Examination," *British Medical Journal*, 2:220-223, Apr. 25, 1970.

Various techniques used in the examination of liquor for bilirubin in cases of pregnancy complicated by Rh isoimmunization are explained.

993. Walker, W., and Ellis, M.I.: "Intrauterine Transfusion," *British Medical Journal*, 2:223-228, Apr. 25, 1970.

Techniques, dangers, and results of administering intrauterine transfusions in several series of patients are reported. Conclusions concerning the "place of intrauterine transfusion" are presented.

994. Walker, W.; Fairweather, D.V.I.; and Jones, P.: "Examination of Liquor Amnii as a Method of Predicting Severity of Haemolytic Disease of Newborn," *British Medical Journal*, 2:141-147, July 18, 1964.

Hemoglobin, bilirubin, and protein levels were estimated in liquor amnii specimens obtained from 277 immunized Rh-negative women during the 34-36th weeks of gestation in order to predict the severity of hemolytic disease of the newborn and to provide evidence that early labor induction might be indicated. The amount of bilirubin in the specimens as estimated in "units" was thought to be the best predictor of the severity of the disease. Twenty per cent of the specimens contained 10 or more units, 40% of these cases resulted in stillbirth or very severe disease. However, stillbirth and very severe disease was also present in cases having lower levels and even in some cases having clear specimens. Protein and hemoglobin levels and their significance are also reported, and results are discussed. It was concluded that this examination method will predict severity of the disease and stillbirth "in at best 50% of cases," but the examination is warranted in cases where premature labor induction is being considered.

995. Wall, Richard L.; Umlaud, Harry J., Jr.; and Geppert, Leo J.: "Muscle Reflex Patterns in Infancy and Childhood; Normal Patterns and Patterns in Thyroid Disorders, Cerebral Palsy, and Meningopathies," *Journal of Pediatrics*, 64: 701-710, May, 1964.

Earlier efforts to measure such patterns are described, and the kineomometer is explained as an instrument capable of recording "the speed, direction, and pattern of muscle reflexes." The technique used and the results whereby the "normal mean values, standard deviations and confidence limits" were established on 3,100 infants and children are presented. Also described are the reflex patterns seen in children with hypo- and hyperthyroidism, mongolism, cerebral palsy, and meningitis. It is believed that the kinemometer may be a very important aid in the early diagnosis of cerebral palsy.

996. Wallace, Helen M.: "Day Care for Handicapped Children," *Young Children*, 21: 151-161, Jan., 1966.

Twelve day care services for handicapped children in the East Bay Area of California were visited. Described are the sponsorship of the services, the fees charged, the supervision of the services, licensing, the operational frequency, the enrollment policies, the age range of children served, the staffs, etc. Also considered in detail is "the health program for the children." The benefits given the children as viewed by the staffs and suggestions for improvement made by the staffs are described. It is concluded that standards must be established for day care centers for handicapped children and that "an interdisciplinary consulting service" should be provided. Suggestions concerning standards are made.

997. Wallace, Sheila J., and Michie, Eileen A.: "A Follow-Up Study of Infants Born to Mothers with Low Oestriol Excretion during Pregnancy," *Lancet*, 2:560-563, Sept. 10, 1966.

Fourteen infants of mothers who "had very low oestriol excretion in the last trimester of pregnancy" were studied between the ages of 13 and 24 months. Neonatal data on the infants is presented. Upon examination eight were found to be normal and six had various described neurological and psychological deficits.

998. Waltman, Richard; Bonura, Frank; Nigrin, Gabriel; and Pipat, C.: "Ethanol in Prevention of Hyperbilirubinaemia in the Newborn; A Controlled Trial," *Lancet*, 2:1265-1267, Dec. 13, 1969.

The administration of between 100-115 g. of ethanol before delivery to 26 pregnant women resulted in their newborns having significantly reduced serum bilirubin levels at age 3, 4, and 5 days as compared to 13 control infants. "The findings suggest a simple, safe, and expedient agent which may be used to prevent raised levels of bilirubin in the newborn--levels which may affect mental and motor development in the first year of the infant's life."

999. Walton, J.N.; Ellis, E.; and Court, S.D.M.: "Clumsy Children: Developmental Apraxia and Agnosia," *Brain*, 85:603-612, 1962.

Case histories of five clumsy children, observed over a five year period, are presented, and comment is made on each case. The principle features of this "syndrome of clumsiness due to developmental apraxia and agnosia," diagnostic factors, and educational aspects are considered.

1000. Walton, John N.: "The 'Floppy' Infant," *Cerebral Palsy Bulletin*, 2:10-18, 1960.

The confusion and difficulties involved in the concepts concerning the hypotonic infant are described. The author feels that the causes of infantile hypotonia are of three types: "(1) Infantile spinal muscular atrophy. (2) Symptomatic hypotonia. (3) Benign congenital hypotonia." These are individually described and aids to differential diagnosis are considered.

1001. Warrner, Richard A., and Cornblath, Marvin: "Infants of Gestational Diabetic Mothers," *American Journal of Diseases of Children*, 117:678-683, June, 1969.

Thirty-one infants of gestational diabetic mothers (IGDM) were clinically compared with 19 infants of insulin dependent diabetic mothers (IDM) with respect to maternal history, birth weight, Apgar score, hypoglycemia, jaundice, respiratory distress syndrome, congenital malformations, and mortality. Laboratory findings are also reported. The primary finding was that although the above complications occurred in both groups of infants, they occurred less frequently in the IGDM group.

1002. Wasz-Hockert, O.; Koivisto, M.; Vuorenkoski, V.; Partanen, T.J.; and Lind, J.: "Spectrographic Analysis of Pain Cry in Hyperbilirubinemia," *Biology of the Neonate*, 17:260-271, 1971.

Spectographically recorded, analyzed, and compared to normal crys were the pain cries of 45 neonates with hyperbilirubinemia "15 cases with Rh immunization (Group 1), 15 cases with ABO immunization (Group II), and 15 cases of hyperbilirubinemia where no blood group incompatibility could be demonstrated (Group III)."

Methods and data are presented with several spectrographic recordings illustrated. Several differences were noted between the hyperbilirubinemic cry and the normal cry. "Apart of the high pitch and short duration of the cry signal in most of the cases, a very specific type of cry phonation, furcation, was found in 10 of the Rh-, 6 of the ABO immunization, and in only 2 of the hyperbilirubinemia cases without blood group incompatibility. The significance of furcation in the hyperbilirubinemic cry as an early sign of developing brain involvement is discussed."

1003. Waters, William J.: "The Reserve Albumin Binding Capacity as a Criterion for Exchange Transfusion," *Journal of Pediatrics*, 70:185-192, Feb., 1967.

Studied was the relationship between neurological damage and the factors of serum bilirubin concentration and reserve albumin binding capacity in neonates with hyperbilirubinemia. The methods of measurement, the patients, and the results are described. Brain damage was found to be associated with serum bilirubin concentrations above 20 mg./100 ml and reserve albumin binding capacities of less than 50 mg./milliter serum. However of the 120 infants who had no apparent brain damage and a binding capacity greater than 50 mg., 68 had maximum bilirubin concentrations above 20 mg./100 ml. Thus, "the reserve albumin binding capacity is a more selective indicator of the risk of brain damage than the serum bilirubin concentration, particularly when the latter is in the 20 to 25 mg. per 100 ml. range." Also discussed is the relevence of these results to the conditions under which exchange transfusions should be administered.

1004. Watney, P.J.M.; Hallum, J.; and Scott, P.: "The Relative Usefulness of Methods of Assessing Placental Function," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 77:301-311, Apr., 1970.

Measurement of estriol excretion, measurement of serum heat-stable alkaline phosphatase, and vaginal cytology were compared as three methods of assessing placental function in 180 patients at risk, as defined. Methods used and results obtained, regarding each method, when the patients were divided into five groups on the basis of "the size of the baby in relation to the period of gestation" are described. Each method is discussed. "Serial urinary oestriol examination was found to be the most useful and practical for routine use."

1005. Weingold, A.B., and Southern, A.L.: "Diamine Oxidase as an Index of the Feto-placental Unit; Clinical Applications," *Obstetrics and Gynecology*, 32:593-606, Nov., 1968.

Serial plasma diamine oxidase (DAO) titers were measured during normal and complicated pregnancies. A falling or persistently low level of plasma DAO during early pregnancy frequently resulted in abortion, but a number of these pregnancies continued to be successful deliveries. It is theorized that such pregnancies involve fetuses developing in stress environments where permanent damage may result. Work done by the Collaborative Project in Cerebral Palsy supporting this assumption is mentioned. It is concluded that plasma DAO determination may be of value in identifying a high-risk group during intrauterine existence and may also be a means of delineating the infant who will require thorough postnatal observation.

1006. Weingold, Allan B.: "Monitoring the Fetal Environment. 1. Biochemical Methods," *Postgraduate Medicine*, 48:232-238, Sept., 1970. (Series: For II see #1007, III see #1008.)

"Many biochemical, endocrine and biophysical procedures are being used to monitor the fetal environment, the objective being development of a battery of tests for subclinical fetal distress applicable throughout the antepartum course." Enzymatic and nonenzymatic biochemical indexes of the fetal environment are considered in this part of the article. Three enzymes are discussed with regard to their production in normal pregnancy and alterations in this production which may occur in the presence of pregnancy complications. These three are diamine oxidase, alkaline phosphatase, and oxytocinase. Folic acid and serum copper are discussed as two nonenzymatic biochemical indexes.

1007. Weingold, Allan B.: "Monitoring the Fetal Environment. 2. Endocrine and Biophysical Methods," *Postgraduate Medicine*, 48:201-207, Oct., 1970. (Series: For I see #1006, III see #1008.)

Chorionic gonadotropin, pregnanediol, and estriol are individually considered concerning their value as endocrine indexes of the fetal environment. Also discussed are the value of "the colpocytogram in the diagnosis of threatened abortion" and human placental lactogen. With regard to biophysical indexes of fetal status, the uses and values of ultrasonography, amniography, and amnioscopy are described. The technique of ultrasonography "provides, for the first time, a reproducible physical assessment of intrauterine growth which may be correlated with many of the biochemical and endocrine techniques of assessing the physiologic status of the fetus."

1008. Weingold, Allan B.: "Monitoring the Fetal Environment. 3. Selective Application during Labor," *Postgraduate Medicine*, 48:251-256, Nov., 1970. (Series: For I see #1006, II see #1007.)

A number of methods developed to determine fetal maturity are briefly discussed including three tests made of amniotic fluid and ultrasonic measurement. Intrapartum monitoring is considered to be mandatory for all "patients with clinical complications in whom evidence of compromise of the fetal environment has been obtained by one or more of the technics used in antepartum monitoring." Intrapartum monitoring is described with regard to the biophysical techniques of phonocardiography, ultrasonography (Doppler effect), and electrocardiotachometry, and the biochemical technique of fetal scalp blood sampling.

1009. Weingold, Allan B., ed.: "Symposium on Evaluation of Fetal Environment." *Clinical Obstetrics and Gynecology*, 11:1065-1205, Dec., 1968.

The titles of papers written for this symposium and contained on these pages are "Identification of the High Risk Fetus," "Enzymatic Indices of Fetal Environment," "Endocrine Indices of Fetal Environment," "Hormonal Cytology of Pregnancy," "Effects on the Fetus of Folic Acid Deficiency in Pregnancy," Ultrasonic Fetal Monitoring," "Placental Gas Transfer," and "Biochemical Indices of Fetal Condition." All of these indices of fetal condition may be aids in the prevention of perinatal mortality and morbidity.

1010. Weiss, Andrew E., and Schmidt, Rosemary E.: "Developmental Evaluation and Therapy Program; Functional Approach to Developmental Delays in Infant Behavior," *Clinical Pediatrics*, 9:570-572, Oct., 1970.

The importance of the early diagnosis of developmental delay in regard to successful treatment is stated. The Maturation Assessment and Therapy (MAT) program is described as a method to aid in such diagnosis and treatment. It is especially designed to distinguish delayed development caused by "lack of environmental stimulation" from that "resulting from organic disorders." Assessment and therapeutic methods of the program are explained with the multidisciplinary approach being emphasized.

1011. Weiss, Jess B.; Kagey, Karen S.; and Frink, Richard D.: "Fetal Heart Rate Monitoring in Clinical Practice," *Obstetrics and Gynecology*, 35:297-299, Feb., 1970.

A system of monitoring fetal electrocardiographic activity is presented that may be used to record fetal heart rate continuously during labor and that includes "electrodes placed upon the skin of the mother's abdomen."

1012. Weller, Thomas H., and Hanshaw, James B.: "Virologic and Clinical Observations on Cytomegalic Inclusion Disease," *New England Journal of Medicine*, 266: 1233-1244, June 14, 1962.

Several "problems influencing investigations" of cytomegalic inclusion disease are discussed. Seventeen patients having the condition in infancy were studied for from 11 months to 4 years. The technique of isolating the virus from urine was used with these patients, and results are presented in detail as are clinical observations of the children. "One patient in the series died during the third year of life; the remaining 16 are alive, and of these only two are free of evidence of residual damage. Mental retardation is present in 13, and motor disability in 12 of the survivors; three have already been institutionalized."

1013. Wennberg, Richard P.: "Phototherapy and the Jaundiced Infant," *Northwest Medicine*, 69:241-243, April, 1970.

Data from five "controlled studies of phototherapy in hyperbilirubinemia of prematurity" are summarized as are "possible hazards of phototherapy." Three possible hazards are discussed and are concluded to be "probably very small compared to the known hazards of hyperbilirubinemia in the premature infant." Also considered are two possible "hazards of prophylactic phototherapy." Guidelines for the selection of infants to be treated with phototherapy are presented.

1014. Westin, Bjorn: "Infant Resuscitation and Prevention of Mental Retardation," *American Journal of Obstetrics and Gynecology*, 110:1134-1138, Aug. 15, 1971.

The use of positive-pressure ventilation and cardiac massage in infant resuscitation is discussed, and the "infusion of base" is compared to the "transfusion with oxygenated blood" with the latter method preferred. The use of hypothermia and pertinent studies on the subject are then reviewed. "When severely asphyxiated infants were exposed to cold, there was an almost immediate increase in heart rate and Apgar scores and breathing began, after a brief interval (in most cases). Follow-up studies on the cooled infant 10 years later showed normal development."

1015. Westin, Bjorn; Nyberg, Rune; Miller, James A., Jr.; Wedenberg, Erik: *Hypothermia and Transfusion with Oxygenated Blood in the Treatment of Asphyxia Neonatorum*. Uppsala, Sweden: Almquist and Wiksells Boktrycker; AB, 1962. 80 pp. (Acta Paediatrics Supplement, 139, Vol. 51.)

The need for improvement in the methods used to treat neonatal asphyxia in order to reduce infant mortality and the occurrence of brain damage is stated in the "Introduction" to this monograph. The authors then describe two possible methods of treatment--hypothermia and transfusions with oxygenated blood. In Chapters III to VIII a study is presented in detail in which 10 newborn infants with severe asphyxia were treated with hypothermia alone and in combination with transfusion of oxygenated blood. Other resuscitative methods had been tried without success in these cases before the two methods under study were administered. In Chapter IV results of various follow-up examinations and tests are reported. In the surviving nine infants, "no deviations from normal were seen." Results are discussed and conclusions presented in Chapter IX. A bibliography follows.

1016. Wharton, B.A., and Bower, B.D.: "Immediate or Later Feeding for Premature Babies? A Controlled Trial," *Lancet*, 2:969-972, Nov. 13, 1965.

One hundred and eighteen premature babies, fed "large volumes of milk" soon after birth were compared with 121 prematures who were fed less and whose initial feeding was delayed until at least 12 hours of age. Procedures are described. Mortality was much higher in the immediately fed group with no other explanation than the method of feeding detected. Incidence of hypoglycemia and hyperbilirubinemia was reduced in the immediately fed group, and this group regained birth weight earlier. It is concluded that the method is "not without danger," and "modifications of the immediate-feeding regimen are suggested."

1017. Wigglesworth, J.S. : "Disorders of Fetal Growth," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 75:1234-1236, Dec., 1968.

The term "small-for-dates baby" is defined and problems occurring with such infants are discussed. The effects of maternal nutrition and maternal-fetal transfer, the appearance of the small-for-dates baby, and the increased risks these infants face "both during and after delivery" are considered. The importance of the timing of the malnutrition to the impairments resulting is mentioned.

1018. Wigglesworth, J.S.: "Foetal Growth Retardation," *British Medical Bulletin*, 22:13-15, 1966.

Reviewed in this article are the factors controlling fetal growth, the clinical characteristics of small-for-dates babies, pathological features of these infants, causative factors, and resulting handicaps. Numerous studies are cited.

1019. Wigglesworth, J.S.: "Malnutrition and Brain Development," *Developmental Medicine and Child Neurology*, 11:792-794, Dec., 1969.

This "annotation" surveys the literature on the effects of malnutrition on brain development. The work of Myron Winick is emphasized.

1020. Willner, Milton M.: "Maturational Deficiencies of the Fetus and Newborn: Relationships to Drug Effects," *Clinical Pediatrics*, 4:3-12, Jan., 1965.

In this article are reviewed the relationships between "foreign substances such as drugs" in the fetus and newborn and "handicaps and deficiencies of the newborn." These handicaps are divided into the anatomic and the physiologic and explained. The enzyme deficiencies seen in the fetus and newborn in the CNS, the liver, the gastrointestinal system, the kidneys, and the blood are described, and the clinical effects of drugs on these systems are considered. Many related studies are mentioned.

1021. Willocks, James; Donald, Ian; Campbell, Stuart; and, Dunsmore, I.R " "Intrauterine Growth Assessed by Ultrasonic Foetal Cephalometry," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 74:639-647, Oct., 1967.

The biparietal diameter of the fetus in utero was serially measured in 108 cases by using ultrasonic cephalometry. The infants were suspected of being dysmature or of suffering from placental insufficiency. The average number of measurements for each case was 4.2. The results of comparing the growth rate of the biparietal diameter with the birth weight and gestational age of the infants are presented with "comments and criticisms" listed. Also listed are the "cases suitable for this type of investigation." The method is termed "a useful aid in the assessment of cases of suspected dysmaturity."

1022. Willocks, James; Donald, Ian; Duggan, T.C.: and Day, N.: "Foetal Cephalometry by Ultrasound," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 71:11-20, Feb., 1964.

Work in this area is reviewed, and the two primary reasons for using cephalometry are stated as being "to assess disproportion" and "to assess the growth and maturity of the foetus." The principle of the method developed by the authors, the technique, the process by which it was developed, and the results which have been obtained are described. Ultrasonic echo sounding is used to measure the biparietal diameter of the fetus in utero. It is concluded to be a simple and safe method which can be frequently repeated without danger with the results available immediately.

1023. Willoughby, H.W.; Desjardins, P.D.; Power, R.M.H., Jr.; and Lee, T.K.: "Hyperbilirubinemia in Late Pregnancy and Its Correlation with Meconium Staining," *American Journal of Obstetrics and Gynecology*, 109:383-388, Feb. 1, 1971.

Two studies, undertaken to determine "the importance of hyperbilirubinemia in the last trimester of pregnancy as a prognostic sign," are presented. When blood samples were obtained in late pregnancy from 1,018 women, the incidence of hyperbilirubinemia was found to be 10.5%. The condition was correlated with ethnic group, obstetrical complications, meconium staining, fetal distress, neonatal morbidity, and perinatal death. Results are presented in tables. On the basis of the data, it is recommended that all pregnant women be given routine blood tests for hyperbilirubinemia in late pregnancy, and that all pregnant women having the condition be "considered pregnancies at risk."

1024. Willson, M. Ann: "Use of a Developmental Inventory as a Chart of Progress," *Physical Therapy*, 49:19-32, Jan., 1969.

There is a need for physical therapists to have a knowledge of developmental patterns because of the earlier diagnosis being made of congenital disorders and the emphasis on early physical therapy to prevent deformities, etc. Numerous developmental tests or adaptations of such tests used by physical therapists are reviewed with disadvantages frequently mentioned. "The Inventory of Development" is presented and described in detail with respect to item selection, "comparison with other developmental tests," scoring method, and administration. The Inventory is designed to be "a chart of progress" to be used during the physical therapy process. The results of each child's assessment is graphically represented. In close resemblance to the divisions of Gesell, four basic areas of development are assessed from birth to approximately school age: Gross Motor, Fine Motor, Communication, and Personal-Social.

1025. Wilson, Arthur L.: "Group Therapy for Parents of Handicapped Children," *Rehabilitation Literature*, 32:11:332-335, Nov., 1971.

The initiation and the structure of a program consisting of eight group therapy sessions for parents of handicapped children is described. The topics discussed in the sessions are listed, and the areas found to be of special interest and concern to these parents are discussed. Emphasized are the details which led to the success of the program, including the role of the leader, the physical setting of the sessions, the care of the children while the parents were in attendance, etc. Also considered are the factors that motivated the parents to attend the sessions.

1026. Wilson, B.D.R., and Allen, Dorothy: "Splints in the Treatment of Cerebral Palsy," *Physiotherapy*, 48:41-44, Feb. 10, 1962.

Splints are divided into two types: 1) the "all-round plaster of Paris splint" used "to gain range by continuously, over a period(s) of weeks, inhibiting and thus decreasing spasticity" and 2) the "removable splints" used "to control abnormal patterns of movement, and so improve function." In this second type, "the patient must have range of movement." The techniques, follow-up treatment, etc. of the first type used below the knee and for the hand are presented. Splints of the second type that are described include those for the foot and hand, the leg abduction plaster, the halo splint, and special shoes. The value of splintage in the early treatment of cerebral palsy is mentioned.

1027. Wilson, J.: "Chronic Paediatric Neurological Disorders. Part I." *British Medical Journal*, 4:152-154, Oct. 18, 1969. (Series: For II see #1028.)

With emphasis on the role of the family doctor, this article is concerned with the community care and the co-ordination of services for children having neurological disorders. Cerebral palsy is the principle disorder discussed with early diagnosis and management stressed. The problems of the cerebral palsied adolescent are mentioned, and epilepsy is briefly considered.

1028. Wilson, J.: "Chronic Paediatric Neurological Disorders. Part II." *British Medical Journal*, 4:211-213, Oct. 25, 1969. (Series: For I see #1027.)

After a consideration of progressive neurological disorders, various secondary medical problems that occur in neurologically handicapped children are discussed. These include teething difficulties, dribbling, immunization difficulties, and dyschezia. Also of concern in this article are the psychiatric and social problems of the child with a neurological disorder, family stress, and adolescence.

1029. Wilson, John T.: "Caution with Phenobarbital," *Clinical Pediatrics*, 10:684-687, Dec., 1971.

"What is known concerning the potential harmful effects of phenobarbital" for the treatment of neonatal hyperbilirubinemia is reviewed. Numerous studies are cited.

1030. Wilson, Miriam G.; Parmelee, Arthur H., Jr.; and Huggins, Muriel H.: "Prenatal History of Infants with Birth Weights of 1,500 Grams or Less," *Journal of Pediatrics*, 63:1140-1150, Dec., 1963.

Seventy-nine infants having birth weights of from 501 to 1,500 grams were compared on 22 variables, using "multiple regression and single variable analysis computer programs," with 216 infants having birth weights of from 1,501 to 2,500 grams and 134 infants having birth weights over 2,500 grams. The methods and the variables are explained in the Appendices. A principle finding was a correlation between the group having the lowest birth weights and abnormal reproductive history. "Prevention of births of infants with very low weights in this and similar populations is most profitably directed at study of primary reproductive failure, abnormalities of implantation, toxemia, and pyelonephritis."

1031. Windle, William F.: "Brain Damage at Birth; Functional and Structural Modifications with Time," *Journal of the American Medical Association*, 206:1967-1972, Nov. 25, 1968.

Results of Dr. Windle's work on asphyxiated monkeys are reported and related to the findings of the Collaborative Perinatal Program of the NINDB. Presented in detail are the results of studying "the symptomatic and neuropathologic modifications of asphyxial brain damage" with time in 16 asphyxiated monkeys. Although physical and behavioral deficits improved with time and no planned therapy, histological examination of the brains of these monkeys, after living from three to nine years, revealed "progressive deterioration of brain structure." These findings are discussed in relation to the findings of the Collaborative Perinatal Study that most of the infants having neurological deficits at one year did not have them at age four years. Dr. Windle concludes, "I do not doubt that they, too, are full of lesions." The value of "intensive physical exercise regimens" for treating the cerebral palsied is questioned on the basis of the results with the primates.

1032. Windle, William F.: "Brain Damage by Asphyxia at Birth," *Scientific American*, 222:76-84, Oct., 1969.

Asphyxia is defined, and the condition of asphyxia neonatorum and its debated role in brain damage are discussed. The experiments by the author and his colleagues involving the asphyxiation of rhesus monkeys are presented. While monkeys asphyxiated for a shorter time at birth showed abnormal neurological signs which disappeared relatively quickly, "all the monkeys that had been asphyxiated during birth for more than 12 minutes and had to be resuscitated exhibited functional deficits that persisted for some time." "The most seriously injured animals presented symptoms resembling those encountered in human beings with cerebral palsy." Other factors, such as premature birth, postnatal respiratory distress, kernicterus, etc., were found to sometimes increase "the amount of brain damage and the extent of functional loss" when they occurred with asphyxia neonatorum. Findings involving these various "complicating factors" are presented and discussed. The gradual disappearance of neurological deficits and the abnormal brain section findings, including "secondary brain damage" in the 17 monkeys studied over a long period of time are described. These findings on monkeys are then related to findings on human infants from the Collaborative Perinatal Research Program.

1033. Windle, William F.: "Effects of Asphyxiation of the Fetus and the Newborn Infant," *Pediatrics*, 26:565-569, Oct., 1960.

The poor quality of existing studies on the subject is described, and the value of utilizing animals in such studies is discussed. Areas of confusion and misconception are considered as are the biochemical and behavioral changes that occur in the presence of asphyxia. Five criteria necessary for the "successful clinical evaluation of relationship between asphyxiation and anoxia in the birth process and mental retardation in the offspring" are listed.

1034. Windle, William F.: "An Experimental Approach to Prevention or Reduction of the Brain Damage of Birth Asphyxia," *Developmental Medicine and Child Neurology*, 8:129-140, Apr., 1966.

The results of experiments when asphyxia was induced in 132 fetal monkeys are reported. Asphyxiation for a period of more than 7 minutes resulted in brain damage in all cases. The neuropathology of the monkeys and the clinical course of those having cerebral palsy are discussed. A review is conducted of previous studies concerned with the prevention and treatment of asphyxia neonatorum. Dr. Windle concludes that at present (1966) the only effective therapeutic technique is the infusion of alkali and glucose. This treatment may be an important factor in preventing cerebral palsy.

1035. Winick, Myron: "Cellular Growth during Early Malnutrition," *Pediatrics*, 47:969-978, June, 1971.

The experimental studies conducted in this area by others and by the author are reviewed. The effects of both post- and prenatal malnutrition on cellular growth are considered.

1036. Winick, Myron: "Cellular Growth of Human Placenta, III. Intrauterine Growth Failure," *Journal of Pediatrics*, 71:390-395, Sept., 1967.

The elements of total weight, desoxyribose nucleic acid (DNA), ribonucleic acid (RNA), and protein content were assessed in the placentas from 25 infants with intrauterine growth failure. Severe malformations were detected in eight of these infants, and their placentas were found to be normal with regard to the examination criteria. In the other 17 infants no physical defect other than small size was determined, but the placentas were found to weigh less proportionately to contain less protein and DNA, and to contain an increased RNA content. "Thus protein/DNA was normal whereas the RNA/DNA ratio was elevated." Results are discussed, and "it is suggested that this increased ratio may be a manifestation of placental insufficiency."

1037. Winick, Myron: "Comprehensive Approach to a Child with a Birth Defect," *Bulletin of the New York Academy of Medicine*, 43:819-828, Sept., 1967.

"The comprehensive approach to a child with a birth defect involves numerous facets: 1) the family must be supported; 2) the child must be medically rehabilitated, properly educated, taught to enjoy his leisure time, and placed in a rewarding and productive vocation; 3) society must be prepared to accept more and more children and adults with congenital malformations." Aspects of these factors are discussed.

1038. Winick, Myron: "Fetal Malnutrition and Growth Processes," *Hospital Practice*, May, 1970.

Reporting on his own studies as well as those of others, Dr. Winick concludes that cellular growth is not a homogeneous process, but rather one in which the organ moves from a stage where growth is primarily due to cell division to a stage where growth is by increase in cellular size. Findings from studies conducted on rats and humans show that timing is the critical factor in determining the outcome of fetal and early postnatal malnutrition. Undernutrition during the first stage of cellular growth can result in a permanent reduction in cell number. The brain, completing its growth first among body organs, suffers a high risk from fetal malnutrition.

1039. Winick, Myron: "Malnutrition and Brain Development," *Journal of Pediatrics*, 74:667-679, May, 1969.

In this review article numerous studies concerned with this subject are examined and interpreted. The studies are of two types, "those dealing with physical and chemical brain growth and maturation and those dealing with the development of brain function, i.e., neurologic, psychomotor, and intellectual development." Two important factors revealed by these studies are that malnutrition is "a self-perpetuating problem" in families and in populations, and that the timing of the malnutrition is of critical importance. Possible preventive or corrective measures are briefly discussed.

1040. Winick, Myron, and Rosso, Pedro: "The Effect of Severe Early Malnutrition on Cellular Growth of Human Brain," *Pediatric Research*, 3:181-184, Mar., 1969.

Brains were studied as described and compared in 10 children in Santiago, Chile who died accidently or from poisoning and who "were well nourished and were within the normal height and weight curves for both Chilean and American children" and in nine infants in Santiago, Chile who died before age 1 year from severe malnutrition. The brains in the latter group "all showed reduced weights and reduced quantities of protein, RNA, and DNA content." "The data also suggest that the younger the child when malnutrition strikes, the more marked the effects."

1041. Winick, Myron, and Rosso, Pedro: "Head Circumference and Cellular Growth of the Brain in Normal-Marasmic Children," *Journal of Pediatrics*, 74:774-778, May, 1969.

Studied was the correlation between the cellular growth of the brain and head circumference in normal and malnourished children who had died "during the first year of life." The results of comparisons in both groups of children were presented. The head circumferences of the marasmic children were all "more than two standard deviations below the mean for normal children of the same age" with brain weight and protein also reduced proportionally. "DNA content (cell number) was reduced as much as, and in three cases more than, head circumference." It is concluded that measurement of head circumference is a valid means of assessing "postnatal brain growth in normal and malnourished infants."

1042. Winick, Myron; Rosso, Pedro; and Waterlow, John: "Cellular Growth of Cerebrum, Cerebellum, and Brain Stem in Normal and Marasmic Children," *Experimental Neurology*, 26:393-400, Feb., 1970.

Brains were examined and compared as described from 12 well nourished children who died as a result of accidents, etc. and from 16 marasmic, severely malnourished children who died before age two years. Results are reported concerning the patterns of cellular growth in the cerebrum, cerebellum, and brain stem and weight wet and dry, protein, RNA, and DNA content values. "These data demonstrate that malnutrition early in life will retard the rate of cell division and reduce the ultimate number of cells in human cerebrum, cerebellum, and brain stem. The data from this study reveal different regional growth patterns and different regional effects of malnutrition in human brain than those which have been previously reported in rat brain. These differences have raised some questions as to the suitability of the rat as a model for studying the effects of malnutrition on cellular growth."

1043. Wishingrad, Lester; Cornblath, Marvin; Takakuwa, Toshio; Rosenfeld, Irving M.; Elegant, Lawrence D.; Kaufman, Avner; Lassers, Elizabeth; and Klein, Reuben I.: "Studies of Non-Hemolytic Hyperbilirubinemia in Premature Infants. I. Prospective Randomized Selection for Exchange Transfusion with Observations on the Levels of Serum Bilirubin with and without Exchange Transfusion and Neurologic Evaluations One Year After Birth," *Pediatrics*, 36:162-172, Aug., 1965.

Compared were 50 premature neonates with non-hemolytic hyperbilirubinemia, who received exchange transfusions, and 50 who did not. Eighty-seven infants acted as controls. Methods used, data on the subjects, and results concerning the course of the non-hemolytic hyperbilirubinemia birth weight relationships, the development of kernicterus, mortality, neurological sequelae, etc., are described. The children were neurologically examined at discharge, at age six months, and at age one year with no significant difference observed among the three groups. It was concluded "that exchange transfusions in the management of non-hemolytic hyperbilirubinemia of the premature not associated with clinical factors which may enhance the development of kernicterus such as asphyxia, hypoproteinemia, sepsis, etc., need not be performed for unconjugated bilirubin values under 24 mg/100 ml."

1044. Wolf, James A., comp. and ed. *The Results of Treatment in Cerebral Palsy*. Springfield, Illinois: Charles C. Thomas, 1969. 327 pp.

This book brings together noteworthy articles relating to the physical treatment in cerebral palsy. Some of the individual articles are annotated elsewhere in this bibliography. Part One of the volume is concerned with the historical background of cerebral palsy. Various systems of treatment which have been developed are outlined. Part Two consists of reprints of articles by physical therapists which describe fundamental principles to be considered in evaluation and assessment of children with cerebral palsy. Articles on the results of treatment are contained in Part Three, and several developmental and assessment scales are presented in Part Four.

1045. Wolf, James M., and Anderson, Robert M., comps. and eds. *The Multiply Handicapped Child*. Springfield, Illinois: C. C. Thomas, 1969. 468 pp.

Numerous papers, many reprinted from journals, by outstanding authors in the several fields concerned with the handicapped child are contained in this book. The seven papers in Part One introduce the reader to the medical and educational challenge presented by the multiply handicapped child. Reports on investigations into the incidence and the prevalence make up Part Two. Education is the topic of concern of the eight papers in Part Three, and evaluation is the general topic of the five papers comprising Part Four. "A Theoretical Framework for the Multiply Handicapped Child" is the title of Part Five. Over 50 pages of fully cited references follow the text.

1046. Wolf, James M., comp., Temple Fay: *Progenitor of the Doman-Delacato Treatment Procedures*. Springfield, Illinois: Charles C. Thomas, 1958. 258 pp.

This volume is a compilation of nineteen articles, including many on cerebral palsy, written by Temple Fay. Rehabilitation is emphasized.

1047. Wolf, Steven L.: "Contralateral Upper Extremity Cooling from a Specific Cold Stimulus," *Physical Therapy*, 51:158-165, Feb., 1971.

An investigation involving ten normal subjects is described in which the hypothesis that "application of cold to the unaffected or contralateral limb may provide a means of cooling to the affected extremity" was tested. Methods used and results supportive of the hypothesis are presented. It is suggested that this method may be effective in the alleviation of spasticity "while providing the patient with limited physical and psychic discomfort." Possible mechanisms involved in the contralateral cooling are discussed.

1048. Wolff, Peter H.: "The Serial Organization of Sucking in the Young Infant," *Pediatrics*, 42:943-956, Dec., 1968.

This report describes the two distinct sucking rhythms found in normal newborn infants. One of these, the non-nutritive sucking pattern, was found to be significantly different in infants with a history of perinatal distress but who showed no definite neurological signs. Infants with definite brain damage may or may not have deranged patterns of non-nutritive sucking depending on the nature and the severity of the disease. The sucking patterns found in Down's syndrome, perinatal anoxia, hyperbilirubinemia, dysmaturity, neonatal seizures, and metabolic disorders are discribed. The predictive significance of sucking rhythm abnormalities for later development has not been established.

1049. Wolinsky, Gloria: "Current Status and Future Needs in Research on the Orthopedically Handicapped Child," *Rehabilitation Literature*, 31:290-296, Oct., 1970.

The following three factors are discussed "in terms of their influence on current and future trends in research as it concerns the education of the orthopedically handicapped": (1) "Elements in the research situation," (2) "the complexity of the situation described as orthopedic," and (3) "the need for new approaches to research." Also considered are methodology and its relationship to value theory, role theory, the term 'illness' in relation to the orthopedically handicapped patient, and the "area of dynamic psychology and personality theory."

1050. Wolski, William, and Light, Gerald S.: "Cerebral Dysfunction in Children; Do Not Procrastinate," *Clinical Pediatrics*, 8:5, Jan., 1969.

"This brief presents the case for early diagnosis, direction, and treatment of children with possible symptoms of cerebral dysfunction." The effects on the young child and his family of the "wait and see approach" in such cases are discussed.

1051. Wood, Ben; Comley, Ann; and Sherwell, Janet: "Effect of Additional Albumin Administration During Exchange Transfusion on Plasma Albumin-Binding Capacity," *Archives of Disease in Childhood*, 45:59-62, Feb., 1970.

Exchange transfusions were given to a total of 33 infants with hyperbilirubinemia. Two groups or 23 of these infants also received albumin, using two different methods of administration, while 10 were controls. Results on the three groups concerning the effects on bilirubin, albumin, reserve albumin-binding capacity, and diffusion of the albumin are presented. "Both albumin-treated groups showed significantly higher levels of plasma albumin and of reserve albumin-binding capacity in the phase of bilirubin rebound eight hours or more after exchange."

1052. Wood, Carl, ed. *Fifth World Congress of Gynaecology and Obstetrics.* Held in Sidney, Australia, September, 1967. Australia: Butterworth's, 1967. 934 pp.

Contained in this volume are the papers presented by the three principle speakers of this Congress, "main papers," and "free communications" or abstracts. The papers and abstracts have been grouped by subject. Subjects pertinent to this bibliography under which papers and abstracts are found include "Effects of Abnormal Labour on the Foetus and the Newborn" and "Recent Progress." Many abstracts, unrelated to subjects of concern to the Congress, are included at the end of the book.

1053. Wood, Carl; Ferguson, Russell; Leeton, John; Newman, Warwick; and Walker, Adrian: "Fetal Heart Rate and Acid-Base Status in the Assessment of Fetal Hypoxia," *American Journal of Obstetrics and Gynecology*, 98:62-70, May 1, 1961.

Reported is a study undertaken to determine "the comparative usefulness" of two methods of diagnosing fetal hypoxia. The methods studied and compared were: (1) measurement of fetal blood acid-base status, and (2) continuous monitoring of the fetal heart rate during labor. Methods of study are described. The majority of the 129 patients studied had various obstetrical conditions which could increase the likelihood of fetal hypoxia occurring. Results from using both methods, several individual cases, and apparent problems are reported. It is concluded that both methods "are valuable in assessing fetal condition and are complementary to each other."

1054. Wood, Carl, and Pinkerton, John H.M.: "Foetal Distress," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 68:427-437, June, 1961.

Physiological factors, diagnosis, and treatment of this condition are discussed. Of specific concern is the significance of meconium-stained liquor and the fetal heart rate.

1055. Wood, Carol; Lumley, Judith; and Renou, Peter: "A Clinical Assessment of Fetal Diagnostic Methods," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 74:823-825, Dec., 1967.

The results of fetal diagnostic tests, used during labor on infants that had Apgar scores of 0 - 3 at two minutes of age, were assessed in order "to elucidate the events leading up to the birth of babies in poor condition." The fetal heart rate was recorded, and fetal blood pH, Po_2, Pco_2, base deficit, and glucose were measured. In the majority of the babies both the blood pH and the fetal heart rate were abnormal during the second stage of labor, and fetal heart rate changes were revealed to usually precede a fall in blood pH, Po_2, and Pco_2 measurements were found to be "less useful as prognostic tests."

1056. Wood, E. Carl; Beischer, N.A.; and Barham, K.A.: "Use of Fetal Assessment Tests," *Developmental Medicine and Child Neurology*, 11:608-616, Oct., 1969.

The "use and limitations of" several fetal assessment tests are reviewed. Tests included are the measurement of the amount of estriol excreted in maternal urine, amnioscopy, amniocentesis, continuous monitoring of the fetal heart rate during labor, and fetal scalp blood collection to test for fetal acidosis.

1057. Wood, Mary Margaret. *Rutland Center*. Austin, Texas: University of Texas, Program for Staff Training of Exemplary Early Childhood Centers for Handicapped Children, [1971]. 59 pp. (Staff Training Prototype Series Vol. II, No. 10.)

In six chapters is described "the Training Component process during the planning grant year for the preschool project" at Rutland Center. "Rutland Center is a community-based facility in Athens, Georgia which combines professional mental health and special education personnel in a cooperative program of psychoeducational service to seriously emotionally disturbed or behaviorally disordered children." Chapter One consists of an "Introduction" to the training component and each of the subsequent five chapters deals with planning activities in one of the following subareas: "staff training, college training, volunteer training, paraprofessional training, and parent training." Following each of these five chapters are appendices containing forms, etc., pertinent to that subarea of training.

1058. Woodrow, J.C.; Clarke, C.A.: Donohoe, W.T.A.; Finn, R.; McConnell, R.B.; Sheppard, P.M.; Lehane, D.; Russell, Shona H.; Kulke, W.; and Durkin, Catherine M.: "Prevention of Rh-Haemolytic Disease: A Third Report," *British Medical Journal*, 1:279-283, Jan. 30, 1965.

In a previous paper by these authors (Clarke, et al, 1963), experiments were described in which injected Rh-positive cells were removed from the circulation of Rh-negative male subjects by administering "high-titre incomplete anti-D." In the first part of this article an experiment is described in which it was shown that Rh-positive fetal cells could also be removed from the circulation of Rh-negative women. In the second section of this paper, experiments are described in which "two factors of great importance in the application of the technique to preventing Rh immunization due to pregnancy" are studied. These two are the "frequency with which transplacental haemorrhage occurs during pregnancy as distinct from delivery, and the relation of the production of immune antibodies to the size of transplacental haemorrhage assessed after delivery." In the third part of this article a clinical trial is discussed in which anti-D gamma globulin was injected into Rh-negative women following delivery.

1059. Woods, Grace E.: "The Early Diagnosis of Cerebral Palsy," *Cerebral Palsy Review*, 22:10-13, Mar.-Apr., 1961.

On these pages are four short papers by Grace E. Woods, Julio Pinto Duarte, Jacques Hariga, and Ben Epstein, respectively, on the above subject. These papers were presented at the World Commission on Cerebral Palsy in 1960.

1060. Woods, Grace E.: "A Lowered Incidence of Infantile Cerebral Palsy," *Developmental Medicine and Child Neurology*, 5:449-450, Oct., 1963.

Results of a study on the incidence of cerebral palsy in Bristol are reported. A "highly significant" decline in the number of cases was noted within the time period 1943-1962. This decrease is indicated in a chart and the data is analyzed.

1061. Woods, Grace E.: "Some Clinical Notes and Electroencephalographic Findings in Cerebral Palsy," *Archives of Disease in Childhood*, 40:394-401, Aug., 1965.

The EEG findings in a group of 206 cerebral palsied children are analyzed in groups according to the type of movement disorder present - athetosis, hemiplegia, spastic diplegia (subdivided by etiological factors), ataxia, and "minimal movement defect." The value of the EEG with such children is discussed.

1062. World Health Organization. "The Early Detection of Handicaps in Children," *W.H.O. Chronicle*, 22:16-19, Jan., 1968.

The risk register, screening, and a combination of the two are discussed as possible methods of selecting children in whom a handicap is likely.

1063. Wright, Francis S.: "An Approach to Hypotonia in Children," *Postgraduate Medicine*, 50:116-120, July, 1971.

The physiologic and clinical aspects of hypotonia are described, and the condition is differentiated into "central hypotonia," resulting from "diffuse disease of the central nervous system" and "peripheral hypotonia," "resulting from disease of the peripheral neuromuscular system or motor unit." The two types are individually described. It is noted that in some conditions there is involvement of both types.

1064. Wu, Paul Y.K.; Teilmann, Peter; Gabler, Marjorie; Vaughan, Mary; and Metcoff, Jack: "'Early' Versus 'Late' Feeding of Low Birth Weight Neonates: Effect on Serum Bilirubin, Blood Sugar, and Responses to Glucagon and Epinephrine Tolerance Tests," *Pediatrics*, 39:733-739, May, 1967.

Compared were 21 well, low-birth-weight infants who were fed early "(2 hours after birth)" and 21 well, low-birth-weight infants who were fed late "(24 to 36 hours after birth)." Methods of determination and comparison results on the variables listed in the title are presented. Weight loss was found to be less, and weight was regained earlier in the group fed early. "No adverse effects were observed as a result of early feeding. Such feedings may indeed have an advantage in reducing serum bilirubin levels, raising blood sugar, and increasing liver glycogen reserves."

1065. Wurth, Charles W.: "Apgar Test for the Neurological Assessment of Newborns," *Cerebral Palsy Journal*, 27:5-7, Jan.-Feb., 1966.

The Apgar Test is described and is evaluated in terms of item analysis, reliability, and validity.

1066. Wyatt, Thomas H.; Halbert, David R.; and Crenshaw, Carlyle: "Estimation of Fetal Maturity by Cytologic Examination and Creatinine Determination of Amniotic Fluid," *Obstetrics and Gynecology*, 34:772-778, Dec., 1969.

Previous work done in the area of estimating fetal maturity is briefly reviewed. Amniotic fluid samples were obtained from 111 women late in pregnancy and were analyzed "for 'fat cell' counts and creatinine concentrations." The results were then compared to the birth weights of the infants. Procedures are described. "Fetal maturity was correctly indicated by 94% of the fat cell counts of 20% and greater, and by 97% of the creatinine concentrations of 1.5 mg/100 ml. or more." It is concluded and explained that "when there is disagreement between the two analyses, creatinine concentration is more reliable than 'fat cell' counts for indicating maturity and prematurity."

1067. Yamazaki, James N.: "A Review of the Literature on the Radiation Dosage Required to Cause Manifest Central Nervous System Disturbances from in Utero and Postnatal Exposure," *Pediatrics*, 37:877-903, May, 1966.

Surveyed is the literature regarding studies on the effects of radiation on the central nervous system of the mammalian fetus and neonate. Studies on both morphologic and behavioral effects are reported. A lengthy bibliography follows the text.

1068. Yandric, Gayle: "A Frame for Supporting the Cerebral Palsied Child," *American Journal of Occupational Therapy*, 20:151-152, May-June, 1966.

Such a frame designed "to facilitate early developmental patterns of activities of the upper extremities and a stronger shoulder musculature," is described in detail and illustrated. The child using the frame is in a prone and relaxed position in which "active exercises for upper extremity patterning and hand skills can be instituted at an early age, especially for the grossly involved cerebral palsy child, thus facilitating treatment in other areas."

1069. Yerushalmy, J.: "The Classification of Newborn Infants by Birth Weight and Gestational Age," *Journal of Pediatrics*, 71:164-172, Aug., 1967.

In this paper the objectives of such a combined classification system are formulated; several classification systems based on birth weight and gestational age, which have been used, are reviewed; and such a system, which places neonates in one of five groups, is proposed and discussed.

1070. Yeung, C.Y.: "Hypoglycemia in Neonatal Sepsis," *Journal of Pediatrics*, 77:812-817, Nov., 1970.

Of 56 neonates admitted to a Hong Kong hospital because of "obvious clinical features of infection," 17 were revealed to have hypoglycemia. When hypoglycemia was present, gram-negative organisms were predominantly found to be the causal factors in the infection, but in those infected infants who were normoglycemic, gram-positive organisms were predominant. Possible implications and explanations are considered.

1071. Yeung, C.Y., and Field, C. Elaine: "Phenobarbitone Therapy in Neonatal Hyperbilirubinemia," *Lancet*, 2:135-139, July 19, 1969.

Two hundred and ten Chinese neonates, who were jaundiced for various reasons, were studied. Ninety-three were given phenobarbitone, as described, and 117 were not. Fifty-three of the controls and only four of the treated infants needed exchange transfusions. Results concerning those infants "with ABO incompatibility, glucose-6-phosphate dehydrogenase deficiency, cephalhaematoma, and non-specific causes" are individually reported and show that bilirubin levels were significantly reduced when these babies were given phenobarbitone.

1072. Yeung, C.Y.; Tam, L.S.; Chan, Angeline; and Lee, K.H.: "Phenobarbitone Prophylaxis for Neonatal Hyperbilirubinemia," *Pediatrics*, 48:372-376, Sept., 1971.

Three groups of infants born of blood group O mothers were studied. "The first consisted of 45 control infants receiving no medication, the second of 44 infants born of mothers who received 30 mg. of the drug every night for an average of two weeks before delivery, and the third of 44 infants given phenobarbitone 5 mg. 8-hourly for an average of 3 1/2 days beginning 6 to 8 hours after birth." Eighty-six of the infants had group O blood while 47 had ABO incompatibility. Findings after determining serum bilirubin levels daily in these infants for six days are reported. "Treated infants showed significant reduction of incidence of neonatal hyperbilirubinemia and of mean bilirubin levels as compared to the controls. Infants born of treated mothers showed similar beneficial effects, though such effects were much diminished in those with ABO incompatibility." No serious complications were detected. Findings are interpreted.

1073. Younoszai, M.K., and Haworth, J.C.: "Chemical Composition of the Placenta in Normal Preterm, Term, and Intrauterine Growth-Retarded Infants," *American Journal of Obstetrics and Gynecology*, 103:262-264, Jan. 15, 1969.

The chemical compositions of the placentas in normal preterm (26), term (54), and intrauterine growth-retarded infants (30) were determined and compared. The method of analysis is described. Statistically significant differences in placental weights were noted. The placentas of the intrauterine growth-retarded group were significantly higher in protein content than were those of the other higher lipid content than did those of the other two groups. Implications are discussed.

1074. Younoszai, M.K., and Haworth, J.C.: "Placental Dimensions and Relations in Preterm, Term, and Growth-Retarded Infants," *American Journal of Obstetrics and Gynecology*, 103:265-271, Jan. 15, 1969.

The placentas of 26 normal preterm, 85 normal term, and 52 term intrauterine growth-retarded infants were examined and compared with respect to weight, decidual surface area, thickness, density, and cord diameter. Measurement methods are described. Fetoplacental weight ratios were determined, and the relationships found between the placental dimensions and the factors of gestational age and birth weight are reported and summarized.

1075. Yousem, Herbert; Seitchik, Joseph; and Solomon, David: "Maternal Estriol Excretion and Fetal Dysmaturity," *Obstetrics and Gynecology*, 28:491-494, Dec., 1966.

Estriol levels were determined in 12 obstetric patients who displayed signs of fetal dysmaturity "in an attempt to relate estriol excretion to retarded fetal and placental growth and to duration of gestation." Other criteria fulfilled by the cases are listed. "In 11 of the 12 mothers, the urinary excretion was distinctly diminished." Implications are considered.

1076. Yu, John: "Neonatal Meningitis; Pathogenesis, Diagnosis, Management, Sequelae," *Clinical Pediatrics*, 4:387-390, July, 1965.

Topics included in this discussion are diagnostic difficulties, newborn susceptibility, "characteristic reactions to the invading pathogens," diagnostic and treatment methods and expected results. "Sixty per cent of survivors have late complications" which are listed and often involve cerebral dysfunction.

1077. Yudkin, Simon, and Yudkin, Gillian: "Poverty and Child Development," *Developmental Medicine and Child Neurology*, 10:569-579, Oct., 1968.

The effects of poverty on child development are reviewed by reporting results of numerous related studies. Prenatal, perinatal, postnatal, and educational effects are considered. Emphasis is placed on assessing the effects by referring to social indices such as the Registrar General in Britain.

1078. Zachau-Christiansen, B., and Vollmond, K.: "The Relation Between Neonatal Jaundice and the Motor Development in the First Year," *Acta Paediatrica Scandinavica Supplement*, 159:26-29, 1965.

The motor development of a group of children having had neonatal jaundice was assessed at one year of age. Described in tables, the results showed neonatal jaundice to be "of importance in a negative direction for many children during their first year of life."

1079. Zakhary, Rizkalla; Miller, J.A., Jr.; and Miller, Faith S.: "Hypothermia, Asphyxia and Brain Carbohydrates in Newborn Puppies," *Biologia Neonatorum*, 11:36-49, 1967.

A group of puppies, less than one day old, were asphyxiated for varying periods and then maintained at either 37° C. ("coenothermic"), 42° C. (hyperthermic), or 15° C. (hypothermic). Unasphyxiated control puppies were also included. After such treatment, the brains of the dogs were removed; divided into cerebrum, cerebellum, and brain stem; frozen; and analyzed for carbohydrate levels. All methods are described, detailed data are presented, results are discussed at length, and principle findings are listed in the "Summary." The results "suggest that hypothermia protects by both increasing the anaerobic energy stores in the brain and by reducing rate of attribution of these resources during exposure to asphyxia."

1080. Zapella, Michele: "The Placing Reaction in the First Year of Life," *Developmental Medicine and Child Neurology*, 8:393-401, Aug., 1966.

A study of the placing reaction in 350 infants under 10 years of age seen in the outpatient department of a hospital is reported. After describing the methods used in eliciting the response in both the upper and lower limbs, the author presents the methodology and results. Brief case histories are presented for the five cases in which the reaction was not present in the legs. Four of these showed signs of brain damage. In the arms the reaction was rarely present before four months of age but nearly always present after age five months. Observations of the reaction or its absence in sick children on wards are explained and pertinent literature is discussed.

1081. Zausmer, Elizabeth: "The Evaluation of Motor Development in Children," *Physical Therapy*, 44:247-250, Apr., 1964.

Methods of evaluating motor development are mentioned, phases of motor development important in the evaluation process are listed, and the three "main components (that) must be considered in the analysis of a motor activity" are listed and discussed. These three are: "1. Developmental levels. 2. The motivation to perform the activity. 3. The quality of the obtained performance." A rating scale is then presented which was designed to assess the motor behavior of handicapped children and in which an attempt was made to incorporate the three above factors.

1082. Zausmer, Elizabeth: "Locomotion in Cerebral Palsy; The Approach of the Physical Therapist," *Clinical Orthopaedics and Related Research*, 47:49-55, July-Aug., 1966.

The current methods of treatment in cerebral palsy are reviewed, and it is pointed out that all of these approaches emphasize "the importance of the developmental stages." The value of early treatment is greatly stressed, and the rationale behind early treatment is explained. Very early usage of tactile stimuli to elicit reflexive movement in the young cerebral palsied is endorsed as being helpful in later sitting and walking. Various reflexes and methods of their elicitation are discussed in this regard. Ways of helping the cerebral palsied child to achieve locomotion are described. The need to improve preception in cerebral palsied children is mentioned.

1083. Zdanska-Brinker, M., and Walanski, N.: "A Graphic Method for the Evaluation of Motor Development in Infants," *Developmental Medicine and Child Neurology*, 11:228-241, Apr., 1969.

A new method of measuring motor development is described in which four different spheres of development can be assessed. By using grids composed of 34 "stage ages," it is possible to determine a child's state of motor development and to measure deviations in a quantitative form. Data is presented on the results of studies involving 212 children whose development was recorded from the age of four weeks until they were able to walk by themselves. Percentile tables show at what age children in the assessed population passed through the various stages in each of the four spheres. Deviations from the normal figures can then indicate relative retardation of motor development in each sphere of abilities.

1084. Ziel, Hermann A., Jr.: "Erythroblastosis Fetalis, an Obstetric Responsibility," *Postgraduate Medicine*, 32:489-496, Nov., 1962.

The condition is described, the objectives to be met in prenatal care in cases of maternal sensitization and erythroblastosis fetalis are outlined, and obstetric and pediatric care of the erythroblastotic infant is discussed.

1085. Zuelzer, Wolf W., and Brown, Audrey: "Neonatal Jaundice: A Review," *American Journal of Diseases of Children*, 101:87-127, Jan., 1961.

Reviewed are both the theoretical and practical features of neonatal jaundice. Physiological aspects are dealt with at length, a classification chart is presented, and "Clinical Situations Associated with Jaundice" are described. Also considered in detail are kernicterus and therapeutic principles.

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